SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1915.

No. 562.

THE UNITED STATES, PLAINTIFF IN ERROR.

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT, AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

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(Stamped:) Office of the clerk. Received Jul. 15, 1915. Supreme Court U. S.

No. 2415.

United States Circuit Court of Appeals for the Sixth Circuit.

THE UNITED STATES, appellant,

vs.

FORTY BARRELS AND TWENTY KEGS COCA-COLA, appellee.

From the District Court of the United States, Southern Division, Eastern District of Tennessee.

Certified record.

JAMES B. COX,
United States District Attorney, Knoxville, Tenn.,
W. B. MILLER,
Special Assistant United States Attorney, Chattanooga, Tenn.,
For Appellant.

J. B. SIZER, *Chattanooga, Tenn.*
HAROLD HIRSCH, *Atlanta, Ga.*
For Appellee.

(Stamped:) Filed Nov. 29, 1912. Frank O. Loveland, clerk.

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BE IT REMEMBERED, THAT AT A DISTRICT COURT OF THE UNITED STATES, HELD FOR THE SOUTHERN DIVISION OF THE EASTERN DISTRICT OF TENNESSEE, AT THE COURT ROOMS IN THE CITY OF CHATTANOOGA, WITHIN SAID DISTRICT AND THE SIXTH CIRCUIT, ON THE FOURTH MONDAY, IT BEING THE 27TH DAY OF MAY, A. D. 1912.

PRESENT AND PRESIDING, THE HONORABLE EDWARD T. SANFORD, DISTRICT JUDGE.

LIBEL.

IN THE DISTRICT COURT OF THE UNITED STATES OF AMERICA, EASTERN DISTRICT OF TENNESSEE, SOUTHERN DIVISION.

INFORMATION.

Be it remembered, that James R. Penland, United States Attorney for the Eastern District of Tennessee, who for the said United States in this behalf prosecutes, on this 21st day of October, 1909, gives the Court to understand and be informed, that on the 18th day of October, 1909, the Coca Cola Company, of Atlanta, Georgia, an incorporation doing business among the several states, and particularly in the States of Georgia, and Tennessee, with an office in the City of Atlanta in the State of Georgia shipped in car No. 64784 via the Western and Atlantic Railroad, to the Coca Cola Bottling Works, of Chattanooga, Tenn., a consignment of 40 bbls. and 20 kegs of a product, each labeled, "Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30, 1906. Our serial No. is 3324. The Coca Cola Company, by Asa G. Candler, Pt."

Said shipment was an interstate shipment, and received by said consignee on ——— of October, 1909, in the City of Chattanooga, Tennessee, where the same now is and remains in unbroken packages in the possession of Coca Cola Bottling Works.

Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of law, and contains an added ingredient, Caffeine, which is a deleterious ingredient and may render said food product injurious to health. The caffeine in this food product is derived from waste tea leaves and not from the Cola nut, as the name would indicate, and this food product is therefore adulterated under paragraph 5, section 7, of the Food and Drugs Act of June 30, 1906.

Second. The said product does not contain the chief active principle of cola, as the name would indicate, but an extract prepared from exhausted coca leaves, a refuse product obtained in the manufacture of cocaine. Said food product is therefore misbranded under section 8 of said Food and Drugs Act of June 30, 1906, because the package containing it and its label bears a statement which is false and misleading, contrary to the statute in such case made and provided, and against the peace and dignity of the United States.

In consideration of the foregoing premises, said United States Attorney who prosecutes as aforesaid, alleges that the said food product was manufactured, branded and shipped in violation of the laws of the United States, and renders said 40 barrels and 20 kegs, containing said product as aforesaid, subject to be seized and dealt with as the law directs; and he therefore prays that due process of law may be awarded in this behalf, to authorize and enforce said seizure, and the forfeiture of said property to the United States, and to give notice to all persons connected, to appear on the return day of such process and show cause, if any, why such forfeiture should not be adjudged.

The further prayer is, that all necessary orders of procedure, and so forth, be made in the case, and for general relief.

JAMES R. PENLAND, U. S. Attorney.

James R. Penland makes oath and says, that the foregoing information is filed by the request of the Secretary of Agriculture, and on information furnished by him, the said Secretary of Agriculture, and on other facts furnished by the United States officials, which he believes to be true.

JAMES R. PENLAND.

Subscribed and sworn to before me this October 21st, 1909.

HORACE VANDEVENTER,
U. S. Dist. Clerk.

Endorsed. Filed Oct. 21, 1909. (Copy.)

INFORMATION.

Be it remembered, that James R. Penland, United States Attorney for the Eastern District of Tennessee, who for the said United States in this behalf prosecutes, on this the 21st day of October, 1909, gives the Court to understand and be informed, that on the 18th day of October, 1909, the Coca Cola Company, of Atlanta, Georgia, an incorporation doing business among the several states, and particularly in the States of Georgia and Tennessee, with an office in the City of Atlanta, in the State of Georgia, shipped from said City of Atlanta, in said State of Georgia, in car No. 64784, via Western & Atlantic Railroad, to the Coca Cola Bottling Works, of Chattanooga, Tennessee, a consignment of forty barrels and twenty kegs of a product each labeled, "Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30th, 1906. Our serial No. is 3324. The Coca Cola Company, by Asa G. Candler, Pt."

Said shipment was an interstate shipment, and received by said consignee on 20th of October, 1909, in the City of Chattanooga, Tennessee, where the same now is and remains in unbroken packages in the possession of the Coca Cola Bottling Works at Chattanooga, Tennessee.

Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of the law, and contains an added ingredient, caffeine, which is a deleterious ingredient and renders said food product injurious to health.

The caffeine in this food product is derived from waste tea leaves, and not from the cola nut, as the name would indicate, and this food product is therefore adulterated under paragraph 5, section 7 of the Food and Drugs Act of June 30, 1906.

Second. The said food product does not contain the chief active principle of coca, as the name would indicate, but an extract prepared from exhausted coca leaves, a refuse product obtained in the manufacture of cocaine.

Said food product is therefore misbranded under section 8 of said Food and Drugs Act of June 30th, 1906, because the package containing it and its label bears a statement which is false and misleading, contrary to the form of the statute in such case made and provided and against the peace and dignity of the United States.

In consideration of the foregoing premises, said United States Attorney, who prosecutes as aforesaid, alleges that

the said food product was manufactured, branded and shipped in violation of the laws of the United States and renders said forty barrels and twenty kegs, containing said product as aforesaid, subject to be seized and dealt with as the law directs, and he therefore prays that due process of the law may be awarded in this behalf to authorize and enforce said seizure, and the forfeiture of said property to the United States, and to give notice to all persons connected, to appear on the return day of such process, and show cause, if any, why such forfeiture should not be adjudged.

The further prayer is that all necessary orders of procedure and so forth, be made in the case, and for general relief.

JAMES R. PENLAND, U. S. Attorney.

James R. Penland makes oath and says that the foregoing information is filed by the request of the Secretary of Agriculture, and on information furnished by him, the said Secretary of Agriculture, and on other facts furnished by United States officials, which he believes to be true.

JAMES R. PENLAND.

Subscribed and sworn to before me this October 21, 1909.

HORACE VANDEVENTER,
U. S. Clerk, E. D. T.

Endorsed. Filed, October 21, 1909, by Horace VanDeventer, Clerk.

ATTACHMENT AND MONITION.

To the President of the United States of America. To the Marshal of the Eastern District of Tennessee, Greeting:—

Whereas, A libel of information has been filed in the District Court of the United States for the Eastern District of Tennessee, at Chattanooga, Tennessee, on the 21st day of October, 1909, by James R. Penland, United States Attorney for said District on behalf of the United States against forty barrels and twenty kegs of Coca Cola described in said libel and now in the possession of the Coca Cola Bottling Works of Chattanooga, Tennessee, for reasons and causes in said information mentioned and praying the usual process and monition of the said Court in that behalf to be made, and that all persons having or pretending to have any right, title or interest therein may be cited to appear and answer all the matters in the said information set forth and that this court would be pleased to pronounce for the forfeiture and condemnation of said property;

You are therefore commanded to attach the said prop-

erty and to detain the same in your custody until further order of this Court; and to give notice by publication in the Chattanooga Times, Chattanooga, Tennessee, for fourteen days previous to the day of trial, and by notice posted in the most public manner for fourteen days at or near the place of trial of such seizure or information to all persons claiming the said property, or knowing or having anything to say why this Court should not pronounce against the same, according to the prayer of the said information and that they be and appear before the said Court to be holden in and for said Eastern District of Tennessee, at the United States Court house in the City of Chattanooga, in the said District on the 4th Monday in November 1909, and then and there to interpose a claim to the same and to make their allegations in that behalf.

And of what you have done in the premises do you then and there make return, together with this writ.

Witness, the Honorable Edward T. Sanford, Judge of the said Court, and the seal thereof, this the 21st day of October in the year of our Lord, 1909, and of the Independence of the said United States the 134th year.

HORACE VANDEVENTER,
Clerk U. S. District Court.

(Seal).

Came to hand October 22d, 1909, at Chattanooga, Tenn., and executed as commanded on same day as follows:

First, I found and levied the within attachment on the 19 barrels of the Coca Cola being a part of the same mentioned in the said attachment and information located in Coca Cola Bottling Works building of Chattanooga, Tennessee, on Chestnut street.

Second, I found and levied said attachment on 18 barrels of said Coca Cola and on 20 kegs of same, as mentioned and described in said attachment and information located in the warehouse of Trigg-Dobbs & Co., on Broad and Seventh streets, Chattanooga, Tennessee, and took the same into my possession, this October 22, 1909.

P. W. EVANS, U. S. Dep. Marshal.

(Endorsed). Filed, October 22nd, 1909.
By R. M. WATKINS, Dep. Clerk.

ANSWER.

The answer of the Coca Cola Company, owner of the property seized and attached in the above entitled cause, to the information filed herein.

First. Respondent admits that it is a corporation as alleged in the information, and that it made the shipment of forty barrels and twenty kegs of the food product re-

ferred to in the information, substantially as alleged therein. It is admitted that the barrels and kegs containing said food product were labeled as alleged in the information. It is admitted that said shipment was an interstate shipment; that it was received by the consignee in Chattanooga, Tennessee, on or about the date stated in the information; and that it remained in unbroken packages in the possession of the consignee until seized by the Marshal under the attachment issued in this cause.

It is admitted that the product contained in said barrels and kegs is a food product, but it is denied that said shipment was made in violation of law. Said product is a mixture or compound, and it is admitted that one of the ingredients contained in it is a small proportion of caffeine; but the same is not an added ingredient but is one of the essential constituents of the mixture or compound aforesaid. It is denied that caffeine, as used and contained in said product, is a deleterious ingredient or that it renders said product injurious to health. It is denied that the caffeine in said product is derived from waste tea leaves. Respondent is advised, however, that inasmuch as the caffeine contained in said product is not an added ingredient, but an essential constituent, its presence does not constitute an adulteration of the product under paragraph 5 of section 7 of the Food and Drugs Act of June 30th, 1906, as alleged in the information, and that the source from which the caffeine was obtained, and the question whether it is a deleterious ingredient or renders the food product injurious to health, are wholly immaterial.

Respondent denies that the name of said product indicates that the caffeine contained in it was derived from the cola nut.

Second. In answer to the paragraph or count of the information, respondent admits that said product does not contain the chief active principle of coca leaves, and it is denied that the name indicates, or is intended to indicate, that the product contains said principle. The fact is that the name of said product, as contained on the labels aforesaid, is a reproduction, or fac-simile of the registered trade mark under which said product has been made and sold for over twenty years; that said product is a mixture or compound, as hereinbefore stated, and is and has been for more than twenty years widely and generally known under the name aforesaid, which is its own distinctive name, and is an arbitrary and fanciful name, which clearly distinguishes said food product mixture or compound; and said name is not, and is not intended to be, descriptive of the composition of the food product; that said name is accom-

panied, on the labels used by respondent, with a statement of the places where said article is manufactured or produced; and it is denied that the package containing said product, or its label, bears any false or misleading statement, or that said product is misbranded under section 8 of said Food and Drugs Act, as alleged in the information. A true copy of the trade-mark under which said product is and has been made and sold as aforesaid is here shown to the Court marked Exhibit "A" to this answer and made a part hereof. It is denied that said product contains "an extract prepared from exhausted coca leaves, a refuse product obtained in the manufacture of cocaine," as alleged in the information, and it is denied that the allegation is material.

And respondent now avers that all the matters hereinbefore averred are true. Wherefore, respondent prays that the information be dismissed with costs.

The respondent demands a jury to try all issues of fact arising in this cause.

THE COCA COLA CO.
Asa G. Candler, President.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER, Attys. for Respondent.

The United States of America, }
Northern District of Georgia. }

Asa G. Candler, being duly sworn, deposes and says that he is the president of the Coca Cola Company, the within named respondent; that he has read the foregoing answer and knows the contents thereof; and that the statements in said answer are true to his own knowledge, except as to those matters and things stated as on information and belief, and as to those matters and things he believes them to be true.

Subscribed and sworn to before me this 20th day of November, 1909.

ASA G. CANDLER.
R. L. D. McALLISTER,
Notary Public, Fulton County, Ga.
(Seal) Commission expires Oct. 29, 1913.
(Endorsed). Answer. Filed Nov. 22nd, 1909.
R. M. WATKINS, Dep. Clerk.

BOND AND CLAIM.

Now comes Asa G. Candler and respectfully states and represents that he is the president of the Coca Cola Co., a corporation chartered and existing under and by virtue of the laws of the State of Georgia; that said corporation is the sole owner of the property above described which was

seized and attached by the Marshal under the process of this Court in the proceedings aforesaid, and that no other corporation is the owner of the same. And the said Asa G. Candler, as such president, claims the said property on behalf of the said corporation, and prays that the same be restored and that the said corporation may be permitted to defend this proceeding.

ASA G. CANDLER,
For the Coca Cola Co.

Northern District of Georgia,
County of Fulton, State of Georgia.

Asa G. Candler, being duly sworn, deposes and says that the statements made in the foregoing claim subscribed by him are true.

ASA G. CANDLER.

Sworn to and subscribed before me this 18th day of November, 1909.

R. L. D. McALLISTER,
(Seal). Notary Public, Fulton County, Ga.
Commission expires Oct. 29th, 1913.

STIPULATION ENTERED INTO PURSUANT TO THE RULES AND PRACTICE OF SAID COURT.

Whereas, an information was filed in said Court on the —— day of October, 1909, by James R. Penland, United States District Attorney, on behalf of the United States, against forty barrels and twenty kegs of Coca Cola, for the reasons and causes mentioned in said information, and said property has been seized and attached under process of this Court;

And whereas also a claim has been filed for said property by and on behalf of the Coca Cola Company;

Now, therefore, it is hereby stipulated and agreed for the benefit of whom it may concern, that the stipulators undersigned shall be, and each of them is hereby, bound in the sum of two hundred and fifty dollars, conditioned that the claimant above named shall pay all costs and expenses which shall be awarded against it by the final decree of this Court, or upon an appeal, by the appellate Court.

THE COCA COLA COMPANY.
By Asa G. Candler.
J. F. Johnston.
B. F. Thomas.

J. F. Johnston and B. F. Thomas, parties to the above stipulation, being duly sworn, do depose and say that they reside in the Southern Division of the Eastern District of Tennessee, and each that he is worth the sum of five hun-

dred dollars over and above all his just debts and liabilities.

Sworn to and subscribed before me this 23rd day of November, 1909.

R. M. WATKINS, Dep. Clerk.

(Endorsed). Filed November 22nd, 1909.

R. M. WATKINS, D. C.

DEMAND FOR JURY.

Comes the Coca Cola Company into open Court and having filed its claim to the property attached and its answer to the information in the above styled cause, demands a jury to try the following issues of the fact arising upon the information and answer, to-wit:

1. Is the caffeine contained in the food product mentioned in the information an added ingredient?

2. Is the caffeine contained in said food product a deleterious substance which may render said product injurious to health?

3. Is the caffeine contained in said product derived from waste tea leaves?

4. Does the package containing said product or the label thereon bear any statement which is false or misleading within the inhibition of section 8 of the Food and Drugs Act of June 30, 1906?

5. Does said product contain an extract prepared from exhausted coca leaves?

PRITCHARD & SIZER,
Attorneys for Respondent.

(Endorsed). Demand for jury. Filed November 22nd, 1909,

By HORACE VAN DEVENTER, Clerk, Etc.

ORDER ALLOWING DEMAND FOR JURY BY COCA COLA COMPANY.

In this cause the Coca Cola Company having filed its claim to the property attached and its answer to the information, presented in open Court and in the presence of the United States District Attorney its written demand for a jury to try certain issues of fact specified in said demand; which demand is ordered filed and made a part of the record in the cause.

(Endorsed). Filed November 22nd, 1909.

By HORACE VANDEVENTER, Clerk, Etc.

MOTION TO AMEND LIBEL.

Comes the plaintiff, by James R. Penland, United States Attorney, and moves the Court for permission to file an

amended libel herein, embodying the following amendments to the original libel:

I.

By striking out the last paragraph in count one and inserting instead thereof the following:

"Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of the Food and Drugs Act of June 30, 1906, in this:

1. The substance coca has been wholly substituted by another product.

2. The substance coca has been wholly, or in part, substituted by caffeine and caramel.

3. Said product contains an added ingredient, caffeine, which is a deleterious ingredient and renders said food product injurious to health. The caffeine in said food product is derived from waste tea leaves and not from the cola nuts, as the name would indicate. In consequence of the facts stated in the foregoing paragraphs, 1-3 inclusive, said food is adulterated in violation of said statute."

II.

By striking out count two and inserting thereof the following:

1. "The word coca used in said label as part of the name of the product Coca Cola leads one to believe that the article contains the active medicinal agents of coca leaves, one of which is cocaine, when, as a matter of fact, the product coca cola does not contain any coca, and said label is therefore misleading.

2. The word or name cola used in said label as part of the name of the product, Coca Cola, leads one to believe that said product contains cola, whereas, it contains no cola, the caffeine present being added as caffeine and not derived from the cola.

3. Said label on said barrels and kegs bears a pictorial design of the cola leaves and nuts, and thus suggests the presence of cola in said product, which is misleading for the reason that said product contains no cola.

In consequence of the facts stated in the foregoing paragraphs 1-3 inclusive, said food product is misbranded in violation of said statute.

(Endorsed). Filed November 27th, 1909.

By HORACE VANDEVENTER, Clerk U. S. D. C.

AMENDED LIBEL.

Be it remembered that James R. Penland, United States Attorney for the Eastern District of Tennessee, who for the said United States in this behalf prosecutes, on this

27th day of November, 1909, gives the Court to understand and be informed, that on the 18th day of October, 1909, the Coca Cola Company, of Atlanta, Georgia, an incorporation doing business among the several States, and particularly in the States of Georgia and Tennessee, with an office in the city of Atlanta, in the State of Georgia, in car No. 64784 via the Western & Atlantic Railroad to the Coca Cola Bottling Works, of Chattanooga, Tennessee, a consignment of forty barrels and twenty kegs of a product, each labeled "Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30, 1906. Our serial number is 3324. The Coca Cola Company, by Asa G. Candler, Pt."

Said shipment was an interstate shipment, and received by said consignee on the — day of October, 1909, in the City of Chattanooga, Tennessee, where the same now is and remains in unbroken packages in the possession of the Coca Cola Bottling Works.

Said barrels and kegs, containing said product as above stated and described, which is a food product, were shipped in violation of the Food and Drugs Act of June 30, 1906, in this:

1. The substance coca has been wholly substituted by another product.

2. The substance cola has been wholly or in part substituted by caffeine and caramel.

3. The product contains an added ingredient, caffeine, which is a deleterious ingredient, and may render, and does render, said food product injurious to health.

The caffeine in said food product is derived from waste tea leaves and not from the cola nuts, as the name would indicate.

In consequence of the facts stated in the foregoing paragraphs, 1-3 inclusive, said food is adulterated in violation of said statute.

II.

1. The word coca used in said label as part of the name of the product coca cola leads one to believe that the article contains the active medicinal agents of coca leaves, one of which is cocaine, when, as a matter of fact, the product coca cola does not contain any coca, and said label is therefore misleading.

2. The word or name Cola used in said label as part of the name of the product Coca Cola leads one to believe that said product contains Cola, whereas it contains no cola, the

caffeine present being added as caffeine and not derived from the cola.

3. Said label on said barrels and kegs bears a pictorial design of the cola leaves and nuts, and thus suggests the presence of cola in said product, which is misleading for the reason that said product contains no cola.

In consequence of the facts stated in the foregoing paragraphs, 1-3 inclusive, said food product is misbranded in violation of said statute.

Said adulteration and misbranding is contrary to the statute in such case made and provided, and against the peace and dignity of the United States.

In consideration of the premises, said United States Attorney, who prosecutes as aforesaid, alleges that the said food product was manufactured, branded and shipped in violation of the laws of the United States, and renders said forty barrels and twenty kegs, containing said product as aforesaid, subject to be seized and dealt with as the law directs; and he therefore prays that due process of law may be awarded in this behalf, to authorize and enforce said seizure, and the forfeiture of said property to the United States, and to give notice to all persons connected to appear on the return day of such process and show cause, if any, why such forfeiture should not be adjudged.

The further prayer is, that all necessary orders of procedure, and so forth, be made in the case, and for general relief.

JAMES R. PENLAND,
United States Attorney.

James R. Penland makes oath and says that the foregoing information is filed by the request of the Secretary of Agriculture, and on information furnished by him, the said Secretary of Agriculture, and on other facts furnished United States officials, which he believes to be true.

JAMES R. PENLAND.

Subscribed and sworn to before me this November 27th,
Clerk U. S. District Court.

(Endorsed). Filed November 27th, 1909.
HORACE VANDEVENTER, Clerk U. S. D. C.

ORDER.

In the above styled cause, the Court is pleased to allow plaintiff's motion to amend the information herein, and it is ordered that plaintiff be permitted to file said amended information, and that claimant be allowed thirty days in which to answer said amended information.

1909. HORACE VANDEVENTER,

(Endorsed). Order. Filed November 27th, 1909.
HORACE VANDEVENTER, Clerk U. S. D. C.

MOTION TO WITHDRAW ONE KEG COCA COLA FOR INSPECTION AND EXAMINATION.

In this cause comes the plaintiff, by James R. Penland, United States Attorney, and moves the Court for permission to withdraw from the custody of the United States Marshal one keg of Coca Cola involved in this case for the purpose of having same inspected and analyzed by the Secretary of Agriculture.

(Endorsed). Motion to withdraw one keg Coca Cola for inspection and examination. Filed Nov. 27, 1909.

By R. M. WATKINS, Dep. Clerk.

ORDER ALLOWING AMENDED INFORMATION FILED, ETC.

In this cause the plaintiff asked leave to file an amended information, which was granted, and said amendment was filed accordingly, but subject to the right of the claimant, the Coca Cola Company, to make any legal defense to said amendment, and the claimant is allowed thirty days from this date in which to make defense to said amendment except objections to the right to make the amendment. The plaintiff also made application for leave to take one of the kegs of the product seized in the cause to the City of Washington, for examination and analysis, which application is granted.

The order made in this cause on Saturday, November 27th, is hereby rescinded and set aside.

Enter: SANFORD, J.

(Endorsed). Filed November 29th, 1909.

R. M. WATKINS, Dep. Clerk.

EXCEPTIONS TO AMENDED INFORMATION.

The Coca Cola Company, owner and claimant of the property seized in the above entitled cause, comes by attorney and excepts to the amended information filed in said cause on the 27th day of November, 1909, in the particulars and on the grounds hereinafter set forth, to-wit:

I.

To the first paragraph or count of said information wherein it is averred that the food product seized in the cause is adulterated in violation of the Food and Drugs Act of June 30, 1906.

1. Because it is not shown that the substances, coca and cola, which are alleged to have been wholly or in part substituted by other substances in said food product are either of them ingredients or constituents of said food product as the same is ordinarily made and sold or according to its recognized standard.

2. Because the substitution of other substances for some of the ingredients of an article of food product is not per se an adulteration of the article under said Food and Drugs Act.

3. Because it is not alleged what substance has been substituted in the food product mentioned, for the substance coca.

4. Because the allegation that "the caffeine in said food product is derived from waste tea leaves and not from the cola nuts, as the name would indicate," is wholly immaterial and irrelevant.

5. Because it is not averred that there was ever a food product bearing the name of or known as Coca Cola, prior to the product of the claimant herein, which might be subject to adulteration by substituting therein some other substance for what is called in the information "the substance coca," or by substituting therein some other substance for what is called in the information "the substance cola."

6. Because it is not averred that there was ever a food product composed of coca and cola, whether bearing the name Coca Cola, or some other name, of which claimant's food product is an adulteration under the Food and Drugs Act of June 30th, 1906.

II.

To the second paragraph or count of the information, wherein it is averred that said food product is misbranded in violation of said act:

1. Because the allegation that the word or name coca as used in said label "leads one to believe" that the article contains "the active medicinal agents of coca leaves, one of which is cocaine, when, as a matter of fact, the product Coca Cola does not contain any coca" is vague, indefinite and argumentative, and does not charge any violation of law in that:

(a) It is not averred that the name is false and misleading.

(b) It is not averred that the article does not contain any of the principles of coca leaves.

2. Because the allegation that the word or name cola used in said label "leads one to believe that said product contains cola, whereas it contains no cola" is vague, indefinite and argumentative and does not charge any violation of law in that:

(a) It is not averred that the name is false or misleading.

(b) It is not averred what the word cola indicates.

(c) It is not averred that the article does not contain any of the principles of the cola nut or the cola tree.

3. Because the concluding clause of section 2 of the second paragraph or count of the information, to-wit: "the caffeine present being added as caffeine and not derived from the cola" is wholly irrelevant and immaterial.

4. Because the allegation that the label on said barrels and kegs "bears a pictorial design of the cola leaves and nuts and thus suggests the presence of cola in said product, which is misleading for the reason that said product contains no cola" is vague, indefinite and argumentative, and does not charge any violation of law, in that:

(a) It is not averred that said design is false or misleading.

(b) The nature of the substance, the presence of which would or might be indicated by the said design is not stated.

(c) It is not averred that the said product does not contain any substance derived from the cola nuts or cola leaves.

5. Because there are no such substances as coca or cola which could enter into said product, or whose presence in said product could be suggested either by the name coca cola or by the pictorial design mentioned in the information.

III.

And respondent excepts to the entire amended information and to every part thereof, because the article or food product alleged to be adulterated and misbranded is in no way described, nor are its proper ingredients or constituents stated or shown, in the information.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER,
Attorneys for Respondent.

(Endorsed) Filed December 27th, 1909.
By R. M .WATKINS, Dep. Clerk.

ORDER SUSTAINING EXCEPTIONS.

This cause came on to be this day heard before the Honorable Edward T. Sanford, Judge, etc., on the exceptions filed by the claimant and defendant to the amended information; and upon consideration, the Court is pleased to and does hereby, sustain the exceptions to the first and second sub-sections of the paragraph of the information charging adulteration, on the ground that they do not charge any violation of the Food and Drugs Act of June 30th, 1906; and also sustains the exceptions to the third sub-section under the same paragraph, on the ground that the same allegations were contained in the original information and issue joined in the answer thereto.

The Court also sustains the exceptions to the paragraph of the amended information charging misbranding, and sub-sections 1, 2 and 3 thereto, but on application of the District Attorney he is allowed ten days time in which to amend said paragraph and said sub-sections of the amended information, and the defendant is allowed ten days from the filing of said amendment in which to make defense thereto.

January 27th, 1910.

Enter: SANFORD, J.

(Endorsed). Filed January 27th, 1910.

By R. M. WATKINS, Dep. Clerk.

AMENDMENTS TO INFORMATION OR LIBEL.

In this case leave of the Court having first been obtained, the plaintiff, the said United States, through James R. Penland, United States Attorney, comes and files the following amendment to the Original Libel or Information heretofore filed in said case, and in addition to the allegations and things therein stated, makes the following averments:

That the said Coca Cola Company, a corporation incorporated under the laws of the State of Georgia, as heretofore alleged, has for a number of years past been engaged in, and now is engaged in the manufacture and sale of a food product known as Coca Cola, and from its name, Coca Cola, and the advertisements made of said product and the labels under which it is branded and shipped, it purports to be a food product or drink, composed of coca and cola, or at least to contain the active agents and principles of the coca plant, and of the cola nut or cola plant.

That on the 18th day of October, 1909, forty barrels and twenty kegs of said product was shipped by said company from Atlanta, Georgia, to Chattanooga, Tennessee, and labeled as alleged in the original information.

Said barrels and kegs containing said product were misbranded and shipped in violation of section 8 of the Food and Drugs Act of June 30th, 1906, in this:

(1) That on the label of each package is this statement: "Delicious and refreshing Coca Cola," which is a statement regarding the ingredients and substances contained therein, and is deceptive and misleading for the reason that said product contains no coca, nor does it contain any cola; that is, any active principle of cola derived from the cola nut or cola plant.

(2) Each label on said barrels and kegs bears not only the said statement "Delicious and refreshing Coca Cola," but it also bears a pictorial design of the cola leaves and

cola nuts, which is a statement and pictorial design regarding the ingredients and substances contained therein, and is deceptive and misleading for the same reasons alleged in paragraph one (1) above.

(3) Said product, which contains no coca, nor cola, that is none of the active principles or constituents derived from the cola nut or cola plant, is offered for sale under the distinctive name of another article, to-wit: Coca Cola, and is false and misleading.

Said product, Coca Cola, is adulterated in this: that coca or a product derived from coca leaves, a valuable constituent of said article has been wholly abstracted from said compound, Coca Cola. JAMES R. PENLAND,
United States Attorney.

James R. Penland, United States Attorney, makes affidavit that the statements contained in the foregoing amendments are true as he verily believes.

JAMES R. PENLAND.

Sworn to before me on this 2nd day of February, 1910.
(Seal). C. A. HILL, Dep. Clerk, U. S. Dist. Ct.
(Endorsed). Filed February 3rd, 1910.
HORACE VANDEVENTER, Clerk.
By R. F. McClure, D. C.

EXCEPTIONS TO AMENDMENT TO INFORMATION.

Now comes the said defendant, the Coca Cola Company, by attorney, and excepts to said amendments, as follows:

I.

To the paragraph of said amendment alleging that the food product manufactured by defendant and known as Coca Cola, "from its name Coca Cola, and the advertisements made of said product and the labels under which it is branded and shipped" purports to be "composed of coca and cola, or at least to contain the active agents and principles of the coca plant, and of the cola nut or cola plant."

Defendant excepts because:

(1) The name of a food product, or statements made in advertisements concerning it, do not constitute violations of the Food and Drugs Act of June 30th, 1906, which applies and refers only to statements, designs or devices *on the package* containing the product *or its label.*

(2) The advertisements and statements on the labels which it is alleged represent or indicate that said food product is "composed of coca and cola, or at least to contain the active agents and principles of the coca plant and the cola nut or cola plant," are not set forth.

(3) The information does not state what are "the act-

ive agents and principles of the coca plant and of the cola nut or cola plant," of which it is alleged said food product or drink purports to be composed.

(4) There are no such substances known to science as coca or cola, of which fact this Court will take judicial notice.

II.

To the paragraph of said amendment alleging that the statement "Delicious and Refreshing Coca Cola" on the labels of the packages containing said product is "deceptive and misleading for the reason that said product contains no coca, nor does it contain any cola that is any active principle of cola derived from the cola nut or cola plant,"—

Defendant excepts because:

(1) It is not alleged that said label represents that said product contains either coca or any active principle derived from the cola nut or cola plant.

(2) There are no such substances as coca, or cola, and there are no "active principles of cola."

(3) It is not averred what the "active principles of cola" are.

III.

To the paragraph of said amendment alleging that the pictorial design of cola leaves and cola nuts alleged to be contained on said labels, " is deceptive and misleading for the same reasons alleged in paragraph one (1) above."

Defendant excepts because:

(1) It is not alleged that said pictorial design represents that said product contains coca or an active principle derived from the cola nut or the cola plant.

(2) There are no such substances as coca or cola, and there are no "active principles of cola."

(3) It is not averred what the "active principles of cola" are.

IV.

To the paragraph of said amendment alleging that said product "is offered for sale under the distinctive name of another article, to-wit, Coca Cola,"—

Defendant excepts because:

(1) It is not alleged that there is any other article known or sold under the name of Coca Cola except the product made and sold by defendant under that name, as contained in the barrels and kegs in controversy in this cause.

(2) It is not alleged what the article Coca Cola, under the distinctive name of which the product attached is al-

leged to be offered for sale, is composed of, or in what respect the product attached differs therefrom.

V.

To the paragraph of said amendment alleging that said product is adulterated in that "Coca, or a product derived from coca leaves, a valuable constituent of said article, has been wholly abstracted from the said compound Coca Cola,"—

Defendant excepts because:

(1) It is not alleged what product derived from coca leaves is a valuable constituent of said compound, and has been abstracted therefrom.

(2) It is not alleged whether coca itself, or some product derived from coca leaves, constitutes a valuable constituent of said article and has been abstracted therefrom.

VI.

And defendant excepts to the entire amendment and each and every part thereof, because:

(1) It is not shown or averred what are the constituents or ingredients of the food product, Coca Cola, when made according to its true and proper standard, or in what respect the product attached in this case fails to conform to such standard.

(2) It is not shown or averred in what respect the name of said product, or any statements on the packages containing it or its labels, are false and misleading.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER,
Attorneys for Defendants.

(Endorsed). Filed February 12th, 1909.
By R. F. McCLURE, Deputy Clerk.

AMENDED INFORMATION.

In this case, on motion of James R. Penland, United States Attorney, the Court permits the Government's Libel or information to be amended so as to make the charges more specific.

And thereupon said United States Attorney comes and files the following amendments, to-wit:

Said barrels and kegs, containing said product Coca Cola, were misbranded and shipped for sale in violation of the Food and Drugs Act of June 30th, 1906, in this:

(1) That on the label of each package, among other things, is this statement: "Delicious and Refreshing Coca Cola." Said statement is a representation of the presence in said food product of the substances coca and cola. There

are such substances known as coca and cola, but said food product, Coca Cola, contains no coca nor cola. And as said statements and representations on said labels and packages containing said product, are statements and representations regarding the ingredients and substances contained therein, they are false and misleading, and in violation of said Food and Drugs Act.

(2) Each label on said barrels and kegs, containing said product, bears not only the said statement, "Delicious and refreshing Coca Cola," but also bears a pictorial design of the cola leaves and the cola nuts, which statement and pictorial design is a suggestion and representation of the presence of the substance cola in said food product, Coca Cola. And there are such known substances as cola, cola leaves, and cola nuts, the latter being the fruit of the cola plant, and is a further representation and suggestion of the presence of cola in said food product Coca Cola; and said product, Coca Cola, does not contain the substance cola in its composition, and therefore said statement and pictorial design appearing on said labels and packages are false and misleading, being statements and pictorial designs regarding the ingredients and substances contained in said packages.

(3) Said product, Coca Cola, is adulterated in this: that coca, which is a substance that may be used, and is used, by some people as a stimulant, a valuable constituent of said Coca Cola product as originally and formerly manufactured under its formula and branded and shipped for sale by said Coca Cola Company, has been wholly abstracted from said compound, Coca Cola, which is an adulteration within the meaning of said Food and Drugs Act.

Said product Coca Cola being misbranded, adulterated and shipped as aforesaid, is subject to libel for confiscation under section 10 of the Food and Drugs Act of June 30th, 1906.

JAMES R. PENLAND,
United States Attorney.

Sworn to and subscribed before me this 3rd day of March, 1910.

R. M. WATKINS, Dep. Clerk U. S. Dist. Court.

(Endorsed). Filed March 3rd, 1910.

R. M. WATKINS, Dep. Clerk.

ORDER SUSTAINING EXCEPTIONS.

This cause came on to be heard before the Honorable Edward T. Sanford, Judge, etc., on this the 2nd day of March, 1910, on the exceptions of the defendant to the amendment to the original libel or information filed in the

cause on February 3rd, 1910, and upon consideration, the Court is pleased to and does hereby sustain said exceptions, and said amendment is stricken out, except the clause numbered (3) in said amendment, which was withdrawn by the plaintiff, and thereupon the plaintiff presented to the Court a further amendment to the libel, which it is ordered to file, and the defendant is allowed ten (10) days to make defense thereto, except objections to the filing of the amendment, which are not allowed to be made.

March 3rd, 1910.

Enter: SANFORD, J.

(Endorsed). Filed March 3rd, 1910.

R. M. WATKINS, Dep. Clerk.

ANSWER TO AMENDED INFORMATION.

Now comes the Coca Cola Company, defendant to said cause, and for answer to the amended information filed in said cause on the 3rd day of March, 1910, says:

(1) Answering the paragraph numbered (1) in said amended information, that it is true that the label on each of the packages mentioned contains the words, "Delicious and refreshing Coca Cola"; but it is not true that said statement is a representation of the presence in said food product of the substances, coca and cola, and it is not true that there are such substances known as coca and cola. Said product does, however, contain certain elements or substances derived from the cola leaves and cola nuts.

And defendant shows and avers further that, as set forth in the answer to the original information, said food product which does not contain any added poisonous or deleterious ingredient, is, and has been for many years, known under its own distinctive name, to-wit: Coca Cola, and is not an imitation of or offered for sale under the distinctive name of another article, and that the name is accompanied on the same label or brand with a statement of the places where said product is manufactured or produced; and, therefore, as defendant is advised, the said food product is not adulterated or misbranded under the said Food and Drugs Act.

(2) Defendant denies each and every allegation in the paragraph numbered (2) in said amended information.

(3) Answering the allegations of the paragraph numbered (3) in said amended information, defendant says that no valuable constituent under the formula of Coca Cola has been abstracted from said compound, Coca Cola.

Wherefore, defendant prays that said amendment be dismissed with costs.

THE COCA COLA COMPANY.
By Asa G. Candler, Pt.
CANDLER, THOMPSON & HIRSCH,
PRITCHARD & SIZER,
Attorneys for Defendant.

The United States of America, }
Northern District of Georgia. }

Asa G. Candler, being duly sworn, deposes and says that he is president of the Coca Cola Company, the within named defendant; that he has read the foregoing answer, and that the statements therein made are true.

ASA G. CANDLER.

Sworn to and subscribed before me this 9th day of March, 1910.

G. T. COWART,
Commission expires Aug. 30, 1912.
Notary Public, Fulton County, Ga.

(Endorsed). Filed March 11th, 1910.
R. M. WATKINS, Dep. Clerk.

MEMORANDUM OPINION CONTINUING ACTION ON MOTION FOR NEW TRIAL.

Memorandum Opinion as to Motion for New Trial and Bills of Exception.

The libellant's motion for new trial, with the briefs, has been forwarded to me at Nashville for adjudication, but owing to the pressure of other work requiring immediate attention I have been unable to take up and consider the motion for new trial.

I have, therefore, concluded that in order that the rights of neither party may be prejudiced by this delay, an order should be entered reciting that the motion for new trial has been taken under advisement by the Court and its determination continued to the next term, and further providing that the cause is continued to the next term for the purpose of acting on the motion for new trial, and also for the purpose of settling, allowing, signing and filing any bills of exception that may be presented by either party herein. See Ward v. Cochran, 150 U. S., 597, 603; Minahan v. Grand Trunk R. Co. (C. C. A., 6), 138 Fed., 37. I have accordingly signed such an order for entry by the Clerk.

May 16th, 1911. SANFORD, Judge.

(Endorsed). Filed May 16th, 1910.
By R. M. WATKINS, Dep. Clerk.

ORDER OF CONTINUANCE.

This cause is continued upon application of the Plaintiff until the next term of Court.

O. K. — J. R. PENLAND, U. S. Attorney.

(Endorsed). Order of Continuance. Filed May 23rd, 1910.

HORACE VANDEVENTER, Clerk.

PETITION FOR LIBELLANT.

Your petitioner respectfully shows that the above cause is set for hearing at a special term called to convene first Monday in March, 1911, and that the Coca Cola Company, intervenor and claimant herein, has applied for a trial by jury. Petitioner refers to the entire record herein as showing in detail the various steps taken by the respective parties hereto up to this time.

Without admitting that the demand of the claimant for a jury is made in time, manner and form as required by law (reserving all legal rights on this point), but assuming petitioner's position in this respect should be overruled, it now respectfully shows that a special or new panel should be drawn to try the issues involved herein, and that the panel drawn for service at the November-December Term, 1910, is ineligible and should not be re-empaneled for service herein for the reasons following:

(1) Rule 22 of this Court provides in substance that jurors shall be drawn on the fourth Monday preceding the first day of the term of Court at which jurors are to serve. Said jurors were not drawn on the fourth Monday preceding the first day of the term at which they were to serve.

(2) Said rule provides that the jurors shall be drawn between the hours of 10 a. m. and 3 p. m., whereas, they were not drawn between the hours thus designated, but were drawn shortly after 4 p. m.

(3) Said rule further provides that notice of the drawing of such jurors shall be posted in the office of the Clerk not less than ten days preceding the drawing, whereas, notice was not posted in the office of the Clerk ten days preceding the drawing, and as petitioner is informed and advised, was not posted until at the very most two days previous to the drawing and most likely not until the day of the drawing.

Wherefore petitioner prays for a special panel, as above.

JAMES B. COX,
U. S. District Attorney for the Eastern District of Tennessee.

State of Tennessee, }
County of Knox. }

James B. Cox, being sworn, says he is U. S. District Attorney for the Eastern District of Tennessee, charged with the prosecution of the cause styled at the commencement of the foregoing petition; that he has read and knows the contents of said petition and that the same is true to the best of his knowledge, information and belief.

JAMES B. COX.

Sworn to and subscribed before me this 4th day of January, 1911.

HORACE VANDEVENTER, U. S. Com., E. D. T.

It is hereby stipulated that this application may be acted on by the Hon. E. T. Sanford, Judge, at Knoxville, Tennessee, on January 9th, 1911, at the Court Room at 10 a. m., this action to have the same form and effect as if in open court at Chattanooga, Tennessee, in term time. But it is not considered that the facts stated in the petition justify the summoning of a special panel to try said cause.

PRITCHARD & SIZER,
Attorneys for Defendant.

January 5th, 1911.
(Endorsed). Filed January 5th, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER ALLOWING AMENDED INFORMATION.

In this cause the libellant presented and is permitted to file an Amended Information, same to stand in lieu and stead of the former information and all amendments thereto heretofore filed, and the claimant will have fifteen days in which to make defense thereto.

By consent of parties and order of the Court, the case will be prepared for and stand for trial commencing first Monday in March, 1911.

The filing of the amended information will date as of October 21, 1909, and will not impair the force and legal effect of the previous attachment and seizure herein; nor will it affect the liability of the claimant and bondsmen in the premises.

January 6, 1911. Enter: SANFORD, J.

O. K., W. B. MILLER, Sp. A.
J. B. SIZER,
Attorneys for Defendant.

(Endorsed). Filed Jan. 6, 1911.
R. M. WATKINS, D. C.

AMENDED INFORMATION.

This amended libel of the United States of America in and for the Southern Division of the Eastern District of Tennessee, prosecuted by the United States Attorney in and for said District, respectfully represents and shows:

I.

The original libel herein was filed by the United States of America through the District Attorney in and for the District aforesaid, and prayed seizure for the condemnation of 40 barrels and 20 kegs of a certain article of food or food product, purported and represented to be "Coca Cola." Said condemnation was sought under Act of Congress commonly known as "Food and Drugs Act."

Pursuant to the prayer of said original libel seizure of said food product was had, after which the Coca Cola Co., of Atlanta, Georgia, intervened and gave bond as in such cases provided, whereupon said food product, with the exception of one keg, was released.

Said seizure and condemnation were sought because of the matters in said original libel shown, all of which, together with other causes and grounds for seizure and condemnation, are hereinafter set forth.

II.

And in this behalf the United States of America, by this amended libel, represents that on or about the 18th of October, 1909, the Coca Cola Co., of Atlanta, Ga., a corporation doing business in several states, and particularly in the States of Georgia and Tennessee, transported, or caused to be transported for sale by an interstate carrier, from the City of Atlanta, Ga., to Chattanooga, Tennessee, consigned to Coca Cola Bottling Works alone, or to it in connection with and for the use of itself and one or more other persons, partnerships or corporations, a consignment of 40 barrels and 20 kegs of said food product, Coca Cola.

Said 40 barrels and 20 kegs of Coca Cola thus transported for sale were each and all labeled:

"Delicious and refreshing Coca Cola, manufactured by the Coca Cola Co., Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the Food and Drugs Act of June 30th, 1906. Our serial number is 3324."

"THE COCA COLA COMPANY.

"By Asa G. Candler, Pt."

Said consignment of 40 barrels and 20 kegs was an interstate shipment and was received at Chattanooga on or about October 20, 1909, and on or about said date was

seized under the original information or libel filed herein, and at the time of filing such original information and of such seizure, said consignment of 40 barrels and 20 kegs of Coca Cola remained unloaded, unsold or in original unbroken packages, in Chattanooga, Tennessee.

Said food product, as above stated and described, was adulterated under the Act of Congress aforesaid, in this:

(a) Said product contained an added ingredient, caffeine, which was and is a poisonous ingredient, and might have rendered, and may render, said food product injurious to health.

(b) Said product contained an added ingredient, caffeine, which was a deleterious ingredient, and may render, or might have rendered, said food product injurious to health.

(c) Said food product had been mixed, colored, powdered, coated or stained, by the use of sugar coloring, caramel, and other coloring substances, and by the use of certain flavoring substances, consisting of oil of lemon, sugar, syrup, and lime juice, whereby damage or inferiority of the mixture (the food product, Coca Cola) was concealed, in this that said food product, in the mixing and preparation, contained germs emanating from the body, perspiration, and spittle of the employees of the Coca Cola Company, engaged in mixing and making said food product; and it also contained germs due to divers unsanitary conditions, such as overhanging cobwebs, dirty factory, machinery, apparatus and appliances, insects of various kinds, including flies, bees, spiders and mice; wherefore and by reason of said germs and other substances above enumerated, together with the unsanitary surroundings and conditions incident to manufacture, said food product was of a damaged and inferior quality, which damage and inferiority was concealed by the flavoring and coloring aforesaid.

SECOND COUNT.

And the said Coca Cola Company, of Atlanta, Georgia, transported, or caused to be transported, for sale the 40 barrels and 20 kegs of said food product, Coca Cola, as in the first count hereof shown, to Coca Cola Bottling Works, Chattanooga, Tennessee, alone, or for itself and another or others, labeled as in the first count shown.

And said consignment and transportation, made for the purpose of sale, was received by the consignee or consignees, one or all, on or about October 20th, 1909, and on or about said date was seized under the original information filed herein, and at the time of such filing and seizure,

said 40 barrels and 20 kegs remained unloaded, unsold or in original unbroken packages, in Chattanooga, Tennessee.

The shipper was a corporation, and for a number of years past engaged in the sale of said food product, and the said product thus transported and seized was misbranded in violation of the Food and Drugs Act of June 30th, 1906, passed by Congress in this:

(1) The label on each package, among other things, contained the statement, "Delicious and Refreshing Coca Cola." The expression "Coca Cola" thus employed was and is a representation of the presence in said food product of the substances coca and cola. There are and were such substances *popularly* known as coca and cola, *and* under their own distinctive names, but said food product "Coca Cola" contained no coca and little if any cola.

Therefore said food product is (1) an imitation of the articles or substances Coca and Cola, and (2) was offered for sale under the distinctive name of said two substances coca and cola.

(2) Each label on said barrels and kegs bore not only the said statement "Delicious and Refreshing Coca Cola," among other things, but also a pictorial design of coca leaves and cola nuts, which was and is a suggestion and representation of the presence of coca and cola in said food product "Coca Cola". The coca leaves were thus represented to be the leaves of the coca plant, and the cola nuts to be the fruit of the cola plant.

Wherefore, said pictorial design was a representation and suggestion of the presence of both coca and cola in said food product, when in truth it did not contain any coca, and contained little, if any, cola in its composition, and thus said statement and pictorial design appearing on said labels and packages were and are false and misleading statements and designs regarding the ingredients and substances contained in said barrels, kegs and product.

III.

WHEREFORE, the United States of America prayed in the original libel that process issue and that the United States Marshal of this District be commanded to seize the barrels and kegs aforesaid for condemnation, confiscation and to be dealt with as the law directs and this Honorable Court might determine, which prayer is here and now adopted and renewed, and the Honorable Court is further asked to proceed as in cases of admiralty, so far as is applicable, and that by appropriate order the article of food and food product aforesaid be condemned at the suit of this libellant, according to Act of Congress, and that the inter-

venor and claimant be charged with all the costs of this cause and required to pay such further sums and penalties as warranted by statute.

The libellant further prays for such other, further and general relief as the nature of the case may require.

JAMES B. COX,
Attorney for the United States in and for Southern Division of the Eastern District of Tennessee.

W. B. WILLER, Special Assistant.

United States of America,
Southern Division, Eastern District of Tennessee.

I, James B. Cox, on oath, do state that I am the District Attorney of the United States in and for the Southern Division of the Eastern District of Tennessee; that I have read the foregoing Amended Libel by me subscribed, know the contents thereof, and that the statements made and contained therein are based on information furnished by and through the Department of Agriculture and the Bureau of Chemistry of the United States, and are believed to be true, and that said information is filed by the request of the Secretary of Agriculture of the United States.

JAMES B. COX, U. S. Attorney.

Sworn to and subscribed before me this 27th day of December, 1910.

(Seal). C. A. HILL, Dep. Clerk U. S. Dist. Court.

(Endorsed). Filed January 6, 1911.
By R. M. WATKINS, Dep. Clerk.

ANSWER.

The answer of the Coca Cola Company, defendant, and owner of the property seized and attached in the above entitled cause, to the amended information filed herein on the ..... day of ....., 19.....

I.

Defendant admits the averments in paragraph 1 of said amended information.

II.

Defendant admits that it is a corporation as alleged; that it shipped as averred forty barrels and twenty kegs of a food product known as Coca Cola, and that the said 40 barrels and 20 kegs were each and all labeled as follows:

"Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada; Havana, Cuba; Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30th, 1906. Our serial number is 3324.

"THE COCA COLA CO.
"By Asa G. Candler, Pt."

It is admitted that said consignment was an interstate shipment; that it was received by the consignee at Chattanooga, Tennessee, on or about the date stated in the information; and that it remained in the original unbroken packages in Chattanooga, Tennessee, and in the possession of the consignee at the time it was seized by the Marshal under the attachment issued in this cause.

(a) It is admitted that said food product contained as one of the ingredients a small portion of caffeine; but it is denied that the caffeine as so contained was or is an added ingredient; and it is denied that the caffeine was or is a poisonous ingredient, which might have rendered or may render said food product injurious to health.

(b) It is denied that the caffeine as so contained was or is an added ingredient, and it is denied that caffeine as contained in the food product was or is a deleterious ingredient, which may render or might have rendered said food product injurious to health.

(c) Defendant denies each and every averment contained in sub-section (c) of paragraph II of said amended information.

III.

(1) Defendant denies that the expression "Coca Cola," as used on the labels on said packages was or is a representation of the presence in said food product of the substances coca and cola; and denies that there are such substances *popularly* known as coca and cola under their own distinctive names. But said food product does contain certain elements or substances derived from coca leaves and cola nuts.

(2) Defendant denies that said product is or was an imitation of or is or was offered for sale under the distinctive name of any other article.

(3) Defendant denies that the labels on said barrels and kegs bear any statements or pictorial design regarding the ingredients and substances contained therein which are false or misleading in any particular.

(4) And for further answer, defendant says that the name of said food product as contained on the labels aforesaid, to-wit: "Coca Cola," is the distinctive name of the said food product, under which said product is now known and sold, and has been known and sold for more than twenty years past, as an article of food; that said food product is a mixture or compound, which does not contain any added poisonous or deleterious ingredient, and is not an imitation of or offered for sale under the distinctive name of any other article; and that the said name is ac-

companied on the same label with a statement of the places where said article is manufactured or produced. Wherefore defendant pleads and says that said article is not to be deemed adulterated or misbranded, under the provisions of said Food and Drugs Act of June 30th, 1906.

(5) Each and every allegation of said amended information not hereinbefore specifically admitted or denied is now denied.

WHEREFORE, defendant prays that this proceeding be dismissed, and that it go hence with its reasonable costs.

CANDLER, THOMPSON & HIRSH,
PRITCHARD & SIZER,
Attorneys for Defendant.

The United States of America,
Northern District of Georgia.

Asa G. Candler being duly sworn, deposes and says that he is the president of the Coca Cola Company, the within named defendant; that he has read the foregoing answer and knows the contents thereof; and that the statements in said answer made as of defendant's own knowledge are true, and those made as on information and belief he believes to be true.

ASA G. CANDLER.

Sworn to and subscribed before me, this 6th day of January, 1911.

(Seal).

BARRINGTON T. KING.
Notary Public, Fulton Co., Ga.

(Endorsed). Filed January 10th, 1911, by R. M. Watkins, D. C.

PETITION OF LIBELLANT.

Your petitioner respectfully shows that the above cause is set for hearing at a special term called to convene first Monday in March, 1911, and that the Coca Cola company, intervenor and claimant herein, has applied for a trial by jury. Petitioner refers to the entire record herein as showing in detail the various steps taken by the respective parties hereto up to this time.

Without admitting that the demand of the claimant for a jury is made in time; manner and form as required by law (reserving all legal rights on this point), but assuming petitioner's position in this respect should be overruled, it now respectfully shows that a special or new panel should be drawn to try the issues involved herein, and that the panel drawn for service at the November-December term, 1910, is ineligible and should not be re-empaneled for service herein for the reasons following:

(1) Rule 22 of this Court provides in substance that

jurors shall be drawn on the 4th Monday preceding the first day of the term of Court at which jurors are to serve. Said jurors were not drawn on the fourth Monday preceding the first day of the term at which they were to serve.

(2) Said rule provides that the jurors shall be drawn between the hours of 10 a. m. and 3 p. m., whereas they were not drawn between the hours thus designated, but were drawn shortly after 4 p. m.

(3) Said rule further provides that notice of the drawing of such jurors shall be posted in the office of the Clerk not less than ten days preceding the drawing, whereas, notice was not posted in the office of the Clerk 10 days preceding the drawing, and as petitioner is informed and advised, was not posted until at the very most, two days previous to the drawing and most likely not until the day of the drawing.

Wherefore, petitioner prays for a special panel, as above.

J. B. COX,
U. S. District Attorney for Eastern District of Tennessee.

State of Tennessee,
County of Knox.

James B. Cox, being sworn, says he is U. S. District Attorney for the Eastern District of Tennessee, charged with the prosecution of the cause styled at the commencement of the foregoing petition; that he has read and knows the contents of said petition, and that the same is true to the best of his knowledge, information, and belief.

J. B. COX.

Sworn to and subscribed before me this 4th day of January, 1911.

It is hereby agreed that the foregoing is a copy of a petition that was duly verified and notice thereof served on the undersigned on January 5th, 1911, to the effect that said petition would be presented to Hon. E. T. Sanford, Judge, at Knoxville, Tennessee, for action thereon, on January 11, 1911.

Said original petition has been lost or mislaid, and it is now agreed that the foregoing may have the same force and effect as the original, and may be presented to Judge Sanford for action on January 14, 1911, at Knoxville, Tennessee, without further notice.

By this stipulation, the undersigned does not admit that on the facts stated the government is entitled to the relief sought in said petition, but challenges the government's petition in this behalf. This January 4th, 1911.

J. B. SIZER, Atty. for Intervenor and Claimant.

(Endorsed). Filed, January 12th, 1911.

R.M. WATKINS, D. C.

MOTION OF RESPONDENT FOR COMMISSIONER TO TAKE DEPOSITION.

In this cause the respondent and claimant, the Coca Cola company, comes by attorney and moves the Court for an order granting and directing the issuance of a commission to take the depositions of Dr. Oswald Schmiedeberg, of Strassburg, Germany, on interrogatories this day filed; said motion being based on the affidavit of J. B. Sizer, attorney for said respondent and claimant, filed herewith.

This 11th day of January, 1911.

THE COCA COLA COMPANY,
By J. B. SIZER, Attorney.

Due and legal service of the foregoing motion and receipt of a copy thereof, as well as of the affidavit of J. B. Sizer and of the interrogatories of Dr. Oswald Schmiedeberg therein referred to is hereby acknowledged.

This 11th day of January, 1911.

W. B. MILLER,
Special Atty. for the United States of America.

In the above entitled cause came J. B. Sizer, attorney for the Coca Cola company, the claimant and respondent in the above entitled cause, who, being duly sworn, deposes, and says:

That the testimony of Dr. Oswald Schmiedeberg, who resides in the City of Straussburg, Germany, is material and important on behalf of the said claimant and respondent in the above entitled cause; and that to obtain said testimony it is necessary in order to prevent a failure or delay of justice in said cause, that this Honorable Court grant an order directing the issuance of a commission to examine the said Dr. Oswald Schmeideberg on the interrogatories herewith filed, and cross-interrogatories, if any, to be filed by opposing counsel.

That a copy of this affidavit, and of the motion hereto attached, as well as of the interrogatories to be propounded to the said witness, have been duly served on and delivered to W. B. Miller, Esq., special attorney representing the plaintiff in said cause, as shown by the acknowledgement of service endorsed on said motion.

J. B. SIZER.

Sworn to and subscribed before me this 11th day of January, 1911.

R. M. WATKINS.

(Endorsed). Filed Jan. 12, 1911.
R. M. WATKINS, Deputy Clerk.

ORDER APPOINTING COMMISSIONER TO TAKE DEPOSITIONS.

On reading and filing the affidavit of defendant's attorney, it is, on motion of the defendant's attorney, ordered that a commission be issued in this cause out of this Court, directed to Dr. Max Alder, authorizing and empowering him to examine under oath as a witness in this cause, Dr. Oswald Schmeideberg, a resident of Straussburg, Germany; said examination to be taken on the interrogatories and cross-interrogatories on file in the cause, propounded by counsel for the respective parties. It is further ordered that the testimony of said witness, on said examination, shall be reduced to writing, signed by the witness and certified by the commissioner named herein, and by said commissioner transmitted by mail to the Clerk of this Court, at the City of Chattanooga, Tennessee.

It is further ordered that all testimony taken under the commission provided for herein, shall be taken subject to all legal objections at the trial of this action.

Done at Chambers, on this 21st day of Jan., 1911.

SANFORD, Judge.

O. K.: W. B. MILLER, Sp. A.
J. B. SIZER.

(Endorsed). Filed January 21st, 1911.
R. M. WATKINS, D. C.

STIPULATION OF COUNSEL.

In this cause, it is agreed that the District Judge may pass on the petition for a special or new panel of jurors while absent from the Eastern District of Tennessee, and that his action in this behalf will not be questioned for want of jurisdiction, but will have the same force and effect as if he were within the Eastern District of Tennessee at the time of acting on the application of the Libellant.

This 26th day of Jan., 1911.

W. B. MILLER, Special Counsel for Libellant.
J. B. SIZER, Atty. for Claimant.

(Endorsed). Filed, Jan. 30, 1911.
R. M. WATKINS, D. C.

MEMO. OPINION DIRECTING NEW PANEL OF JURORS.

Memorandum opinion on Libellant's application for special or new jury panel.

On considering the matters set forth in the petition, I am of the opinion that the irregularities in the drawing of the regular panels of jurors for this term of Court are such that upon the application of the Libellant, which is

in the nature of a challenge to the array, and to which the Claimant states in its brief, it "has no particular objection," a new jury should be drawn to hear this case.

An order will accordingly be entered directing the Clerk and jury commissioner to draw, as soon as may be, from the jury box, in the manner provided by law and by rule 22, a new panel of twenty-four jurors, ten days notice of the time and place of such drawing to be given to the resident counsel of each party in this cause; and such jurors to be thereupon forthwith summoned by the Marshal in the usual manner, for the day on which this case has been set for trial.

As the Clerk and jury commissioner are officers of the Circuit Court, on the day set for such trial an order may be then entered in accordance with the statute, providing that such jurors shall serve interchangeably in this Court. Before drawing the names the Clerk and jury commissioner will be careful to see that the box contains the requisite number of names, possessing the statutory qualifications and placed therein alternately by the clerk and commissioner as required by Sec. 2 of Act of June 30th, 1879, ch. 52, 21 stat. L. 43.

SANFORD, District Judge.

(Endorsed). Filed, February 10th, 1911.
R. M. WATKINS, Deputy Clerk.

ORDER THAT NEW JURY BE DRAWN.

On consideration of the petition of libellant herein, it is ordered and adjudged that a new jury be drawn to hear this cause.

It is further ordered that the Clerk and jury commissioner draw, as soon as may be, from the jury box in the manner provided by law and by rule 22 (except as herein modified) a new panel of 24 jurors, and that ten days notice of the time and place of such drawing be given to the resident counsel for the libellant and claimant herein.

On such jurors being drawn, they will be forthwith summoned by the Marshal in the usual manner to appear for service on the date set for trial.

The Clerk and jury commissioner, before drawing the names from the box, will be careful to see that it contains the requisite number of names possessing the statutory qualifications, such names, being placed therein alternately by them, as required by Section 2, Act of June 30, 1877, ch. 52, 21 stat, L. 43.

The Court filed a written opinion in the premises which

is made a part of the record.
Feb. 11, 1911. Enter: SANFORD, Judge.
O. K., W. B. MILLER, Sp. A.
J. B. SIZER, for Def't.
(Endorsed). Filed Feb. 11, 1911.
R. M. WATKINS, D. C.

BE IT REMEMBERED, that at a District Court of the United States, held for the Southern Division of the Eastern District of Tennessee, at the Court Rooms in the City of Chattanooga, within said District and the Sixth Circuit, on the first Monday, it being the 28th day of November, A. D., 1910. Present and presiding, the Hon. Edward T. Sanford, District Judge. Among the proceedings had were the following, to-wit:

MONDAY MORNING, MARCH 13TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came the parties by their attorneys, came also the following jury, to-wit: G. W. Plumlee, J. J. Woody, J. E. Standifer, R. S. Brown, Grant Simmons, Sig Klaus, J. A. Maybray, W. M. Springfield, William Ball, Joseph Hatfield, E. E. Young, and J. B. Shipley, good and lawful men, citizens and freeholders of the Southern Division of the Eastern District of Tennessee, who being duly elected, tried and sworn to try the issues joined between the parties and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, MARCH 14TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel or the charge of the Court, they are respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, MARCH 15TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until

this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, MARCH 16TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

FRIDAY MORNING, MARCH 17TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at eight-thirty o'clock.

SATURDAY MORNING, MARCH 18TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until Monday morning at nine o'clock.

MONDAY MORNING, MARCH 20TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on Saturday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, MARCH 21ST, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, MARCH 22D, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning, and having not yet heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, MARCH 23D, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

FRIDAY MORNING, MARCH 24TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

SATURDAY MORNING, MARCH 25TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. San-

ford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until Monday morning at nine o'clock.

MONDAY MORNING, MARCH 27TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, MARCH 28TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, MARCH 29TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, MARCH 30TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until

today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

FRIDAY MORNING, MARCH 31ST, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

SATURDAY MORNING, APRIL 1ST, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until Monday morning at nine o'clock.

MONDAY MORNING, APRIL 3D, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on Saturday, who were respited until today, and who not having heard all the evidence, the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

TUESDAY MORNING, APRIL 4TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday who were respited until today, and who not having heard all the evidence, the argument of counsel or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

WEDNESDAY MORNING, APRIL 5TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until today, and who not having heard the argument of counsel, or the charge of the Court, are from rendering a verdict respited until tomorrow morning at nine o'clock.

THURSDAY MORNING, APRIL 6TH, 1911.

Court met pursuant to adjournment.

Present and presiding, the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

Came again the parties by their attorneys, came also the same jury as on yesterday, who were respited until this morning at nine o'clock.

The motion of the defendant and claimant for peremptory instructions to the jury having been argued, and considered by the Court, the same was in part sustained, and in part overruled, as shown by the opinion of the Court, this day filed, and which is hereby made a part of this order.

Thereupon counsel for the United States of America in open Court and before the jury dismissed, without prejudice, the amended libel in so far as the same averred in sub-section (c), paragraph 11, wherein it was averred in substance that the food product attached in this cause had been mixed, colored, powdered, coated, or strained, etc., whereby damage and inferiority of said product had been concealed; and, also in like manner dismissed sub-section (2) of the second count of said amended libel wherein it was averred that each label on the barrels and kegs attached in this cause bearing a pictorial design of coca leaves and cola nuts, which was, and is suggestive and a representation of the presence of coca and cola in the food product attached.

The said dismissal having been allowed by the Court, the Court thereupon directed the jury to return a verdict in favor of the defendant and claimant, The Coca Cola Company, which was done, and to which the libellant duly excepted.

It is thereupon considered by the Court that the defendant and claimant, Coca Cola Company, have and recover of the United States of America all the costs of this cause.

O. K. W. B. MILLER, for Government.

MOTION OF LIBELLANT FOR NEW TRIAL.

Now comes the Libellant, United States of America, by attorney, and moves the Court to set aside the verdict and judgment in said cause and grant a new trial for following reasons:

(1) The Court erred in peremptorily instructing the jury that the Coca-Cola in controversy was not adulterated, as averred in the Libel.

(2) The Court erred in its findings, conclusion and direction that the Coca-Cola seized was not adulterated, the finding and direction in this behalf being substantially as follows:

> "And I therefore conclude that as a matter of law the Coca-Cola in question is not to be deemed as adulterated by the presence of caffeine as an 'added' ingredient within the true intent and meaning of the act. * * * It results that in so far as the libel charges that Coca-Cola is adulterated because it contains caffeine as an added ingredient, the claimant's motion for peremptory instructions must be sustained."

(3) Whethter or not caffeine was a deleterious or poisonous ingredient of the Coca-Cola syrup which might have rendered the product injurious to health, should have been submitted to the jury.

(4) The Court erred in its findings, conclusions and direction that the name "Coca-Cola" did not constitute a representation of the presence in the product seized of the substances Coca and Cola, and hence that such product was misbranded, the Court's conclusion in this behalf being:

> "It results from the facts hereinbefore found from the undisputed evidence, that in so far as the libel charges the mis-branding of the Coca-Cola by reason of any false statement or suggestion contained in the name itself, the claimant's motion for peremptory instructions must be sustained."

(5) The Court erred in its findings, conclusion and direction that the Coca-Cola seized was not offered for sale under the distinctive name of the substances coca and cola, one or both, as averred in the libel, its conclusion in this behalf being:

> "It also results from what has been heretofore stated that in so far as the libel charges that the Coca-Cola is mis-branded because of being an imitation of or offered for sale under the distinctive name of another article, in the entire absence of evi-

ence to show that this is the case, the claimant's motion for peremptory instructions in so far as this charge of the libel is concerned, must also be sustained."

(6) The Court erred in its conclusion that "in so far as any statement or suggestion contained in the name itself is concerned," the product seized was not mis-branded.

(7) The Court erred in its failure and refusal to submit the case to the jury on issues 1, 2, 4, 5, 6, 7, 8, and 9, submitted by libellant.

(8) The Court erred in finding and holding that —

"the name Coca-Cola is a trade name which has for many years been given by the manufacturer to the food product in question and upon which name a trade mark was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages, consisting of a sweet syrup, colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent after being subjected to a process by which the cocaine and certain other ingrredients are extracted, and also containing as an essential ingredient of the compound caffeine, obtained in the main by chemical extraction from them; that this compound has been for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about 1 1-5 grains to each fluid ounce of the syrup, although slightly less caffeine is contained in the syrup prepared for use in bottles than in that prepared for use at soda fountains; * * * that for many years this compound containing such caffeine has been sold under this trademark name Coca-Cola, has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States; * * * that this name distinguishes this particular product from all other beverages and articles and clearly identifies it as a particular kind and brand of beverage made by its manufacturer and sold under this name, and distinguishes it from all

other beverages or food products manufactured and sold by other persons", —

because the undisputed proof shows that cocaine in appreciable quantities was used in this mixture up to about 1904, and was then taken out of the mixture, so that the ingredients have not been the same or substantially the same since the use of cocaine was dispended with.

The finding aforesaid that the mixture contains, "perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent in its preparation after being subjected to a process by which the cocaine and certain other ingredients are extracted is erroneous," in that (a) up to about 1904 all the cocaine was not extracted, but, on the contrary, an appreciable quantity was contained in the mixture, and (b) none of the ingredients contained in the mixture impart to it either an appreciable quantity or desirable quality of Coca or Cola.

(9) The Court erroneously found and held in substance that for a long number of years Coca-Cola had been made according to the same formula.

(10) The Court erroneously found and held that Coca-Cola "imitates no other article and is not sold under the distinctive name of any other article," for this, that the name itself implies a mixture or compound of an appreciable quantity of Coca and Cola, imparting to the product seized a substantial or desirable quality of both said substances Coca and Cola.

(11) The Court erroneously found and held that the name Coca-Cola, "distinguishes this particular product from all other beverages and articles," for this, that said name does not distinguish the product from any other mixture or compound composed of Coca and Cola.

(12) The Court erroneously found and held that if Coca-Cola, "were sold as 'Coca-Cola' without containing caffeine, the public buying it under this name would be in fact deceived," for this, that there is no proof sustaining this conclusion, or at least the proof cannot be said to be undisputed in this respect.

(13) The Court erroneously found and held that the mixture of Coca-Cola seized "has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States," for this (a) that the mixture advertised and sold under the name Coca-Cola prior to about 1904, contained an appreciable quantity of cocaine, and since that time the cocaine has been removed therefrom; and (b)

the proof is not undisputed that the mixture in question has "become generally known * * * to consumers in the United States" as a caffeine-containing drink.

(14) The Court erroneously found and held that —

> "In short, Coca-Cola without caffeine would not be Coca-Cola as it is known to the public, and would not produce the effect with the Coca-Cola bought by the public under that name produces, and if it were sold as Coca-Cola without containing caffeine, the public buying it under this name would be in fact deceived," —

for this, that the undisputed proof does not support such finding.

This motion is based on the records and files in the cause and the testimony taken on the trial thereof.

THE UNITED STATES,
By JAMES B. COX, U. S. District Atty.

W. B. MILLER,
Special Assistant to the Atty. General.

(Endorsed) Filed April 15, 1911.
R. M. WATKINS, D. C.

ORDER CONTINUING.

In this case the libellant's motion for new trial having been taken under advisement by the Court, this cause is continued to the next term of this Court for the purpose of acting upon said motion for new trial and entering any further orders or decrees that may be necessary in consequence of any action that may be taken on such motion for new trial, and also for the purpose of settling, allowing, signing and filing any bills of exception that may be presented by either the libellant or the claimant after action has been taken on said motion for new trial.

May 16, 1911. Enter.
SANFORD, Judge.

(Endorsed). Filed May 16, 1911.
R. M. WATKINS, Dep. Clerk.

MEMO. OPINION OVERRULING MOTION FOR NEW TRIAL.

Memorandum opinion on Libellant's motion for new trial.

After careful consideration of the motion for new trial I am of the opinion that the same should be overruled.

In the main the motion presents in its various grounds the same construction of the Food and Drugs Act and the same argument in support thereof derived from the Con-

gressional debates and other sources which were urged with great force in behalf of the libellant in the oral argument which preceded the granting of the motion for peremptory instructions, and which set forth a construction of the Food and Drugs Act in which, after careful consideration, I was unable to concur.

In view of the fact that the reasons which in my opinion lead to the construction of the act upon which the claimant's motion for peremptory instructions was sustained were fully stated at the time, I deem it unnecessary to repeat what was then said, but only add that I think the conclusion reached in reference to the question of a "distinctive name" finds some support in the opinion of Judge Hazel in the matter of the misbranding of flavoring extracts, (notice of judgment 806, Food and Drugs Act, pp. 4 and 6), as well as in the charge of Judge Sanborn in the matter of misbranding of mapleine, (notice of judgment 163, Food and Drugs Act, p. 3). Further the ruling as to the force and effect of the word "added" as used in the act in connection with deleterious ingredients finds some support in the opinion of Judge Landis in the case of United States v. 1950 Boxes Macaroni, 181 Fed., 427; although it is undoubtedly true that in some other reported cases in the notices of judgment under the Food and Drugs Act the force and effect of the word "added" seems to have been overlooked and neither called to the attention of the Court nor considered by it.

2. Neither can I think that the effect to be given to the distinctive name Coca Cola under the act is taken away by the fact that in the earlier process of its manufacture there was a slight trace of cocaine in the compound which it has not contained in recent years, for two reasons:

1st. This slight trace of cocaine which the product formerly contained, even if it had any appreciable effect, which is doubtful, did not in any degree affect the question of the caffeine contained in the compound, which is alone the subject of complaint in the libel, and the amount of which has always been the same, the elimination of the slight trace of cocoaine, under the undisputed evidence, having the effect of diminishing the effect of the caffeine, if it had any effect at all; and, second, however this may be, I think the undisputed proof shows the acquisition by this product of the distinctive name of Coca Cola, in its present form, with the same amount of caffeine and without any cocaine whatever, in the several years that have elapsed since the slight trace of cocaine which it originally contained was entirely removed by the new process to which the coca leaves were subjected.

I am therefore of opinion that the motion for new trial should be overruled.

3. The libellant having, at the request of the Court, submitted a brief upon the question of costs, in view of the doubt in the mind of the Court as to the propriety of taxation of costs against the libellant under the judgment as originally prepared by counsel, upon examination of the authorities I am satisfied that this decree was erroneous in so far as it taxed the entire costs of the proceeding against the libellant and that the decree should be modified so that no costs shall be taxed against the libellant, and all the claimant's own costs adjudged against it. See United States v. Boyd, 5 How., 29, 51; Pine River Logging Co. v. United States, 186 U. S., 279, 296; Revised Statutes, Sec. 979; Supreme Court Rules, No. 24, clause (4).

4. An order will accordingly be entered overruling the motion for new trial and correcting the former judgment as to costs in the manner indicated in this opinion.

June 8, 1911. SANFORD, Judge.

(Endorsed). Filed June 8, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER OVERRULING MOTION FOR NEW TRIAL.

In this cause, the motion of the libellant to set aside the verdict and judgment and award a new trial is, upon consideration, overruled and disallowed.

To the action of the Court in overruling said motion the libellant then and there excepted.

It is further ordered that the decree heretofore entered in this cause adjudging all costs against the libellant be and the same is hereby so modified and corrected as to adjudge and provide that no costs shall be taxed against the libellant and that the claimant pay its own costs in the cause.

June 8, 1911. Enter. SANFORD, J.

O. K. — W. B. MILLER, Special Assistant.
J. B. SIZER, Atty. for Defendant.

(Endorsed). Filed June 8, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER EXTENDING TIME FOR BILL OF EXCEPTIONS.

In this cause, on application of libellant, it is allowed an extension of twenty (20) days in addition to the time allowed under Rule 17 of this Court, in which to perfect and have filed a Bill of Exceptions.

Approved: Ordered entered June 22, 1911.
SANFORD, Judge.

W. B. MILLER, Sp. Asst.
J. B. SIZER, for Defendant.
(Endorsed). Filed June 26th, 1911.
R. M. WATKINS, D. C.

UNITED STATES
vs.
FORTY BARRELS
AND
TWENTY KEGS OF COCA COLA. } No. 53.

BILL OF EXCEPTIONS.

On the trial hereof, the claimant tendered the following issues for admission to the jury:

In the District Court of the United States for the Southern Division of the Eastern District of Tennessee.

United States,
vs.
Forty Barrels and Twenty Kegs Coca Cola.

Now comes the defendant by attorney and tenders the following issues of fact, arising under the amended information and the answer thereto, and moves that they be submitted to the jury for determination:

1. Is the caffeine contained in the food product coca cola an added ingredient?

2. Is the caffeine as contained in said product a poisonous ingredient which may render said product injurious to health?

3. Is the caffeine contained in said product a deleterious ingredient which may render said product injurious to health?

4. Has the product attached in this cause been mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed?

5. Are there any substances known as "coca" and "cola" under their own distinctive names?

6. Is the name "coca-cola" as used on the labels on the packages containing the product attached a representation of the presence in said product of any substances known as "coca" and "cola"?

7. Does said product contain any elements or substances derived from the coca leaves and cola nuts?

8. Is said product an imitation of any other article?

9. Is said product offered for sale under the distinctive name of any other article?

10. Is "coca-cola" the distinctive name of the food product in controversy in this case?

11. Do the labels on the packages containing said pro-

duct bear any statement or pictorial design which is false or misleading in any particular?

CANDLER, THOMPSON & HIRSCH,
PRITCHARD & SIZER,
Attorneys for Defendant.

Libellant in lieu thereof tendered the following issues:

The libellant in lieu of the issues of fact tendered by Claimant (and reserving exceptions heretofore taken) hereby presents the following as proper issues to be submitted to the jury:

1. Was the caffeine contained in the product seized a poisonous ingredient?

2. Was the caffeine contained in said product a deleterious ingredient which may render or might have rendered said product injurious to health?

3. Had the product seized herein been mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority thereof was concealed?

4. Were there such substances as "coca" and "cola" known under their distinctive names at the time this proceeding was begun?

5. Was the name "Coca Cola" as used on the labels on the packages containing the product seized taken in connection with the pictorial design on said packages a representation of the presence in said product of any substances known as "coca" and "cola"?

6. Did said product contain any ingredient or substance of appreciable quantity and desirable quality derived from the coca leaves and the cola nuts?

7. Was said product an imitation of any other article or articles?

8. Was said product offered for sale under the distinctive name of any other article or articles?

9. Is "Coca Cola" the distinctive name of the product in controversy in this case under which said product without any substantial change of formula has been known and sold for twenty years?

J. B. COX,
U. S. District Attorney.

W. B. MILLER, Special Counsel.

Filed April 3, 1911.

R. M. WATKINS, D. C.

The Government introduced the following testimony:

IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF TENNESSEE, SOUTHERN DIVISION, AT CHATTANOOGA.

UNITED STATES *versus* FORTY BARRELS AND TWENTY KEGS OF COCA-COLA, THE COCA-COLA CO., *Claimant and Intervenor.*	No. .....

APPEARANCES:

FOR THE GOVERNMENT:

HON. J. B. COX, *District Attorney.*

HON. W. B. MILLER, *Special Assistant to District Attorney.*

MR. A. H. MCCONNVILLE.

FOR THE DEFENDANT:

MR. HAROLD HIRSCH.

MR. J. B. SIZER.

MR. ASA WARREN CANDLER.

MR. R. H. WILLIAMS.

Upon the trial of this case, beginning on this March 13, 1911, at 9 o'clock a. m., before the Hon. Edward T. Sanford, United States District Judge, the following proceedings were had, to-wit:

The Court: Is the Government ready for trial?

Gen. Cox: Yes.

The Court: Are you ready for trial, Mr. Sizer? Does the defendant announce ready?

Mr. Sizer: The defendant is ready.

The Court: We will now proceed to empanel a jury. I will ask the marshal to call those summoned around into the jury box.

(Thereupon the Marshal called the following persons who were seated in the jury box: L. N. Duncan, J. J. Woody, T. E. Standifer—(upon the calling of this juror he stated that his name was J. E. instead of T. E. Standifer)—Jasper Anderson, Frank Simmons, Sig. Klaus, J. A. Maybray, W. M. Springfield, William Ball, Joseph Hatfield, B. F. Sykes, W. C. Lomenick, J. B. Shipley and George W. Plumlee.)

The Court: We will have the entire panel sworn before examination is made of them. The first twelve men will occupy the box.

(The entire panel of sixteen men was sworn.)

The Clerk: Your Honor, there is the jury in the box.

The Court: You may now call the names of these twelve men, and as their names are called they will answer as to the county where they are from.

The Clerk: All right, Your Honor.

(The clerk then called the jury, the jurors answering with the counties as follows: L. N. Duncan, Marion county; J. J. Woody, Polk county; J. E. Standifer, Sequatchie county; Jasper Anderson, Marion county; Frank Simmons, Polk county; Sig. Klaus, Hamilton county; J. A. Maybray, Hamilton county; W. M. Springfield, Hamilton county; William Ball, Bradley county; Joseph Hatfield, Sequatchie county; B. F. Sykes, Rhea county; W. C. Lomenick, Hamilton county; J. B. Shipley, Hamilton county; G. W. Plumlee, Hamilton county.)

The Court: Is the Government satisfied with the jury?

Mr. Miller: We would like to ask Mr. Woody if he is engaged in the sale of Coca-Cola.

Juror Woody: No, sir; never have sold it.

Mr. Miller: You conduct a store, but have never sold any Coca-Cola?

Juror Woody: No, sir; not a thing.

Mr. Miller: Have not formed or expressed any opinion about the case at all?

Juror Woody: No, sir.

Mr. Miller: Now, Mr. Anderson, are you engaged in the sale of Coca-Cola?

Juror Anderson: No, sir.

Mr. Miller: Not sold at your store at all?

Juror Anderson: No, sir.

Mr. Miller: Mr. Ball, is your father's name William Ball? (No response.) Is Mr. Ball on the jury?

The Clerk: Mr. William Ball is on the jury.

Mr. Miller: Is your father's name William Ball?

Juror Ball: Yes, sir.

Mr. Miller: Are you under indictment in the State Court at Cleveland?

Juror Ball: I am not, sir.

Mr. Miller: Have never been?

Juror Ball: No, sir.

Mr. Miller: No indictment pending against you, then?

Juror Ball: No, sir.

Mr. Miller: Mr. Lomenick we will excuse.

The Court: Who did you say?

Mr. Miller: Mr. Lomenick — W. C. Lomenick.

(Juror Lomenick excused on challenge by Government)

The Clerk: J. B. Shipley.

The Court: What county are you from?

Juror Shipley: Hamilton.

The Court: Is the Government satisfied?
Mr. Miller: We will excuse Mr. Duncan.
The Court: Mr. Duncan is excused.
(Juror Duncan excused on challenge by Government.)
The Clerk: George W. Plumlee.
The Court: What county are you from?
Juror Shipley: Hamilton.
Mr. Sizer: There seem to be two men on the jury whose names were not drawn. It seems that Mr. B. F. Sykes appears as a juror, whereas the man drawn was James Sykes. I don't know how that substitution came to be made, but evidently it was not done by the jury commission.
The Court: B. F. Sykes was drawn by the jury commission.
Marshal Crumbliss: James Sykes was certified to me and I sent the summons for James Sykes. Afterwards this correction was made by one of the men in the office, stating that the clerk at Chattanooga had called him up and had called up the attorney-general ——
Gen. Cox: My attention was called to the fact that it was a misnomer.
Mr. Miller: There is no James Sykes at all, as I understand that the sheriff of Rhea county reported that to the clerk. The clerk is here and can answer.
The Court: Who did the jury commissioners draw?
Mr. Miller: James Sykes, and there is no such man.
The Court: I do not think Mr. B. F. Sykes then corresponds to the name of James Sykes, so he may stand aside unless resummoned. It may be necessary to call somebody, then he may be summoned. I don't think he is properly on the panel. Call the next juror.
The Clerk: The next one is Mr. Charles H. Allen.
The Court: Take the box, Mr. Allen. Where are you from, Mr. Allen?
Juror Allen: Bradley county.
Mr. Sizer: Another man, W. B. Miller, was drawn as a juror, and the marshal called the name of M. B. Miller.
The Court: He did not come; he never got notice of it.
Mr. Sizer: I thought that he answered.
The Court: The marshal has stated that he did not receive any return of the notice.
Mr. Sizer: Is there a Mr. Miller on the jury?
The Court: No.
Mr. Sizer: Mr. Anderson, are you in any way prejudiced against the use of Coca-Cola, or coffee or tea?
Mr. Miller: I object to the form of that question, as to coffee or tea.
Mr. Sizer: Well, I want to know.

The Court: I overrule the exception. I think he can inquire for the purpose of peremptory challenge without holding it to be a ground of challenge.

Juror Anderson: What was the question?

Mr. Sizer: I asked him whether he had ——

The Court: You asked him whether he had any prejudice against tea or coffee?

Mr. Sizer: I ask you, Mr. Anderson, whether you have any prejudice against the use of coffee or tea or Coca-Cola, any of them?

Juror Anderson: Well, not in any particular — not particularly, no.

Mr. Sizer: Have you any in general?

Juror Anderson: Well, I don't know whether I can answer the question just exactly like you want it or not. I think such things are limited to the individual who uses them; as to whether he wants to use them or not to use them. I am not a governor in those things, and I don't think I ought to have the right to say just who should or who should not, for either way it is all right with me. If they don't want them it is all right. I would not consider that I was prejudiced against either one.

Mr. Sizer: Well, are you opposed to the use of those substances, any of them?

Juror Anderson: No.

Mr. Sizer: None of them?

Juror Anderson: No, as I tried to explain, I don't know whether I could give a satisfactory answer or not. My opinion has always been it ought to be left to the individual using them to decide for himself.

Mr. Sizer: We excuse Mr. Anderson.

The Court: Call around another man.

Marshal Crumbliss: I will call Mr. J. N. Toler.

The Court: Mr. Toler, what county are you from?

Juror Toler: Hamilton.

The Court: Is the Government satisfied?

Mr. Miller: You have a son that is engaged in the sale of Coca-Cola?

Juror Toler: Yes.

Mr. Miller: You have more or less thought of this question since you were summoned as a juror?

Juror Toler: No more than I ever did in my life. I never used it.

Mr. Miller: Well, he is a member of your family?

Juror Toler: Yes.

Mr. Miller: Well, we will excuse Mr. Toler.

Mr. Sizer: I don't think the Government has but two challenges.

Mr. Miller: In a proceeding in rem I think we have.

The Court: The general rule is three peremptory challenges on each side. You are excused, Mr. Toler. Summon from the bystanders, Mr. Marshal, some three or four; you are not limited to the immediate court room. If you do not find persons whom you can summon here you may go out on the street and select good and intelligent men who will make good jurors, and ask them particularly if they are interested in this question.

Marshal Crumbliss: I see one man I know personally, Mr. A. J. Childress.

The Court: Take a seat in the box, Mr. Childress. Where are you from, Mr. Childress?

Juror Childress: Kingston, Roane county.

The Court: Have you served on a federal, grand or petit jury within two years?

Juror Childress: Never in my life.

The Court: And you know nothing about this case?

Juror Childress: No, sir.

The Court: The condemnation of Coca-Cola?

Juror Childress: No, sir.

The Court: Are you interested in any way in the Coca-Cola business?

Juror Childress: No, sir. I have stayed in a store where they sold Coca-Cola, but I have never been interested in it.

The Court: You sell it now?

Juror Childress: I ain't in business now.

The Court: You are not in business now?

Juror Childress: No, sir.

The Court: Is the Government satisfied?

Mr. Miller: Are any of you gentlemen on there (the jury) engaged in the sale of Coca-Cola in any way?

Juror Allen: Yes, sir.

Mr. Miller: You are from Cleveland?

Juror Allen: Yes.

Mr. Miller: We submit that is cause.

Mr. Sizer: We do not think it is.

The Court: I think that is cause of challenge and excuse the juror. Call another man, Mr. Marshal.

Marshal Crumbliss: I will call around E. E. Young.

The Court: What county are you from?

Juror Young: Hamilton.

The Court: Have you formed or expressed any opinion about this case?

Juror Young: No, sir.

The Court: The condemnation of Coca-Cola?

Juror Young: No, sir.

The Court: Have you served on a federal, grand or petit jury within two years?

Juror Young: I served the first term that you held.

The Court: That was 1908; that is more than two years ago.

Juror Young: The first term you held I served here; I was a picked-up juror.

The Court: That does not disqualify you as a juror. Are you interested in the Coca-Cola business in any way; in the sale or purchase of it?

Juror Young: No, sir.

The Court: Is the Government satisfied?

Mr. Miller: Have you formed or expressed any opinion about the merits of this case?

Juror Young: No, sir.

Mr. Miller: You have not, you say?

Juror Young: How is that?

Mr. Miller: You have not formed any opinion in any way?

Juror Young: No, sir.

Mr. Miller: You feel yourself competent to sit in a case and determine as to the result as to the proper —— determine as to results respecting the adulteration and misbranding of Coca-Cola?

Juror Young: Yes, I am not engaged in the sale of it.

Mr. Miller: You have no connection with it in any way?

Juror Young: No.

The Court: My attention has been called to the fact that Roane county is not in this division, and there is a juror from Roane county on the jury and he will be excused.

Juror Childress: I live here now. I just recently came from Roane county.

The Court: You are now a resident of this county?

Juror Childress: Yes, sir: I live in Hill City.

Gen. Cox: Roane county is in the Northern division.

The Court: Yes.

Gen. Cox: Is the last gentleman from Roane county?

(No response.)

The Court: Is the government satisfied?

Mr. Miller: Yes.

Mr. Sizer: Mr. Childress, how long have you lived in Hamilton county?

Juror Childress: I came from Hill City. My folks came in December and I came last Tuesday.

Mr. Sizer: I submit that he has not been a resident of Hamilton county long enough to qualify him.

The Court: When did you come?

Juror Childress: I came last Tuesday.

The Court: Are you going to live here permanently; make this your home?

Juror Childress: Yes, sir.

The Court: You sold out in Roane county?

Juror Childress: What did you say?

The Court: I say, you sold your home up in Roane county?

Juror Childress: No, sir.

The Court: You did not sell it?

Juror Childress: I rented it.

The Court: You rented it?

Juror Childress: Yes, sir.

Mr. Miller: You and your family are living here, and they have been living here since December?

Juror Childress: Yes, sir.

The Court: Of course, the same qualifications are required here as under the State statute. What is the State statute?

Mr. Sizer: The statute is, as I recall it, that he has been a resident of the county and of the State a certain length of time, it occurs to me that until he has been a resident of the county giving him the right of qualifying him to vote as a resident of the county, he would not be competent to act as a juror.

Gen. Cox: I think the question would be whether he was a householder or a freeholder. If he is not either one, I don't believe he would be competent. I think that is the rule in the State Court, and if he came here with the intention of living and is a householder or a freeholder in this district, it would be sufficient to make him a competent juror. Are you a householder?

Juror Childress: No, sir.

Gen. Cox: You are a freeholder—— I say, are you a householder or a freeholder?

Juror Childress: Yes, sir.

Gen. Cox: In this district?

Juror Childress: In Hill City.

Gen. Cox: You own a house?

Juror Childress: No, we live in a rented house.

The Court: Do you rent it?

Juror Childress: My wife rented it. Of course, it is the same. She came down first; she rented from my son-in-law; she came down here and we are all together.

The Court: Who does the renting—who pays the rent?

Juror Childress: He ain't charging us no rent right now.

Gen. Cox: That would make him a householder, then.

The Court: I didn't understand; it is your son-in-law's house?

Juror Childress: Yes.

The Court: You are just living there with your son-in-law, in your son-in-law's house?

Juror Childress: Yes; of course we aim to pay rent; there has nothing been said about rent that I know of right now.

The Court: You made no arrangement in reference to rent?

Juror Childress: He told my wife to come, and if she wanted to pay rent she could, and if she didn't she need not.

Mr. Miller: Who lives in the house besides you and your family?

Juror Childress: No one.

Mr. Miller: You and your family occupy the house alone?

Juror Childress: Yes.

The Court: Do you own any property in Roane county?

Juror Childress: Yes.

The Court: I think this juror is qualified.

Mr. Sizer: What business are you engaged in, Mr. Childress, now?

Juror Childress: I am not doing anything now.

Mr. Sizer: How did you happen to be moving down here?

Juror Childress: Well, I lived in Kingston, and Kingston is drying up, and my boys wanted to go to work and come to Chattanooga.

Mr. Sizer: How did you happen to come up here this morning?

Juror Childress: I just met Mr. Brown down there. I had got acquainted with him, and he said he was going up to the federal court; that they are going to have a lawsuit up there; and I said I wanted to see Pat Evans; and that is how I came to come.

Mr. Sizer: Do you know anything about this substance Coca-Cola?

Juror Childress: No, sir; I do not.

Mr. Sizer: Have you any prejudice against the use of tea or coffee?

Juror Childress: I have not.

Mr. Sizer: Do you drink both of them?

Juror Childress: I am a dear lover of coffee; I don't care for tea.

Mr. Sizer: Do you ever drink Coca-Cola?

Juror Childress: I never drank a bottle of Coca-Cola in my life.

Mr. Sizer: Well, we will excuse him.

(The juror was challenged peremptorily by the defense.)

The Court: Call another man, Mr. Marshal.

Marshal Crumbliss: I will call Mr. R. S. Brown.

The Court: Mr. Brown, take your seat in the jury. What county are you from?

Juror Brown: Hamilton.

The Court: You say Hamilton?

Juror Brown: Yes, sir.

The Court: Have you served on a federal, grand or petit jury within two years?

Juror Brown: No, sir.

The Court: Have you formed or expressed any opinion about this present suit between the Government and the Coca-Cola people?

Juror Brown: I have not.

The Court: Are you interested in the Coca-Cola business in any way? Do you sell it?

Juror Brown: No, sir.

The Court: Or bottle it?

Juror Brown: No, sir.

The Court: Is the Government satisfied?

Mr. Miller: What is the name of the juror?

The Court: His name is R. S. Brown.

Mr. Miller: We are satisfied.

The Court: Is the claimant satisfied?

Mr. Sizer: We are satisfied.

The Court: The jury now may be sworn, Mr. Clerk.

(Thereupon the Clerk swore the jury in this case.)

The Court: You may proceed with the case, gentlemen.

Mr. Miller: On page 2 of the Amended Information the date is stated as the 18th of October, 1908, whereas it should be October, 1909, and it is a technical error, and I would like to insert the numeral "9" for "8."

The Court: Well, you may make that change.

Mr. Miller: On page 3 of the Libel in describing the insects of various kinds, the flies, spiders, and mice, we want to add "bees."

Mr. Sizer: We object to that. Why not say "all other insects"?

Mr. Miller: I would like to add that.

Now, on page 4 the averment of the Libel is that there are and were such substances popularly known as "Coca" and "Cola." In view of the fact that the issues, a copy of which was submitted to us on Friday afternoon, will be submitted here, we ask to strike the word "popularly."

The statute does not include it and it is mere surplusage, and hence we ask to strike it and aver: "Such substances known as Coca and Cola."

The Court: Is there any objection to that amendment?

Mr. Sizer: I do not think, if Your Honor please, that amendment is hardly proper at this stage of the proceedings, inasmuch as the averment distinctly was: "Such substances ordinarily and popularly known."

Mr. Miller: Not "ordinarily."

Mr. Sizer: I think it would be incumbent upon the Government to show that, anyway, and we have joined the issue on the allegation as made and have prepared issues to be submitted to the jury.

Mr .Miller: That is just what I was coming to. The other point is that the statute does not embody that, Your Honor.

The Court: Yes. What section of the Food and Drugs Act have you in mind?

Mr. Miller: Section 7 and section 8, I believe it is, subsection 1, first — no, section 8, sub-section 2, and the first clause under sub-section 2: "If it be an imitation of or offered for sale under the distinctive name of another article." Now, I don't understand that there is anything there that would make it obligatory upon the Government to prove that this other article was popularly known as the other article, or whether it is under the name of the other article.

The Court: You aver this fact, distinctive name — of "Coca" and "Cola"?

Mr. Miller: Yes.

Mr. Sizer: I don't think you do. What is your allegation? You do not aver that.

Mr. Miller: Labeled on each package, the label containing the statement:

> "Delicious and refreshing Coca-Cola, manufactured by The Coca-Cola Company. We guarantee the contents of this package to comply with the Food and Drugs Act of June 30, 1906. Our serial Number is 3324."

The expression "Coca Cola" thus employed was and is a representation of the presence in said food product of the substances Coca and Cola. There are and were such substances popularly known as Coca and Cola — there is no distinctive name. "Popularly" — there I have alleged more than need be alleged in the declaration.

The Court: You wish to strike out the word "popularly"?

Mr. Miller: We move to eliminate that word "popu-

larly," whether it is popularly known, or scientifically known, or how. The statute makes no provision in that behalf, whether it is known under a distinctive name. I think it is a question of whether it is known under a distinctive name, that is what the statute requires, and that is what it is obligatory upon the Government to prove.

Mr. Sizer: It would not be a distinctive name unless it was popularly known.

The Court: Hand me the paper. I will allow you to strike the word "popularly" provide you also strike the word "and" so as to make it read: "There are and were such substances known as Coca and Cola under their own distinctive names."

Mr. Miller: Yes.

Mr. Sizer: In view of the fact that that amendment is made right at the trial, may it please Your Honor, I suppose we may have the right hereafter to insist that the allegation as now made is not sufficient.

The Court: You may make that question now.

Mr. Sizer: We have already suggested our idea, may it please Your Honor, that in order to have a distinctive name a substance must be popularly and commonly known by that name. This act is for the protection of the public and that was the view of counsel for the Government at the outset, and unless they could aver and could show that a substance is popularly known by a certain name it has no distinctive name, and the averment is that this article has a distinctive name and that is the objection we have to the amendment.

Mr. Miller: In drawing that amended libel it was intended to embrace the original libel, and I think filed by General Penland hurriedly and proof of whether or not an article is popularly known may be circumstance to show it has a distinctive name, but it is by no means the only circumstance of proof, and the statute having provided what shall be a violation of the Act, and not including the term "popularly," I cannot see that it is necessary and we eliminate the word "and" after "Cola" as Your Honor indicated a moment ago.

The Court: You may make the amendment and you may have leave to amend your intervening claim or answer to correspond to it if you desire and take time for that purpose.

Mr. Sizer: We reserve an exception to the amendment, and we will amend the answer as we desire to, without waiving the exception.

The Court: That may be done, but that should be done before noon so that we may know definitely; it should be

done before the issues are made up. You had better take time to amend your answer, Mr. Sizer.

Mr. Sizer: Let me see our answer.

The Court: If you wish a consultation on that subject, you may take a recess.

Mr. Sizer: Very well.

The Court: We will take a ten-minute recess, or longer, if you need it.

Mr. Sizer: All right.

(Thereupon the Court took a recess for ten minutes.)

AFTER RECESS.

The Court: Are you ready with your amendment?

Mr. Sizer: Yes, Your Honor, we amend the answer so as to make it conform to the amended information. We originally denied in the language of the information there are such substances popularly known as "Coca" and "Cola," and we amend that by saying that there are no such substances known as "Coca" and "Cola" under their own distinctive names.

The Court: Prepare the order, Mr. Miller, showing that amendments are allowed, and allow the amendment to be made on the face of the pleadings. Incorporate into the order how it read before and how it will read afterwards so you will get it. You may proceed with the case. Read the pleadings.

Mr. Miller: All right.

The Court: Before doing that, you might call the witnesses on both sides and let them be sworn.

Gen. Cox: Before reading the information?

Mr. Sizer: We have not got a list of our witnesses. We can prepare a list and let those who are present be sworn.

Mr. Miller: We are in the same attitude. We have here first Mr. B. J. Dobbs, Mr. J. L. Lynch, Dr. J. F. Fuller, H. C. Fuller, Dr. F. P. Morgan, Dr. W. O. Emery, Dr. H. W. Wiley, and Dr. L. F. Kebler; also Dr. W. J. Boas and Dr. H. H. Rusby.

The Court: All right; let those be sworn.

Mr. Sizer: We have here Doctor Wesener, and some others.

The Court: The witnesses may be sworn.

(Thereupon the witnesses present in court were sworn by the clerk.)

The Court: Is the rule demanded?

Mr. Miller: Not by us.

Mr. Sizer: We do not care for it.

Gen. Cox: If the Court please, I will read the information.

The Court: I understood from counsel that they were to incorporate all of the original pleadings and amendments in one pleading that would embrace everything.

Gen. Cox: They are incorporated — that has been done.

The Court: And you may read just that last pleading that incorporates that.

Gen. Cox: This is the amended information, Your Honor, leaving off the caption. (Reading):

"This amended Libel of the United States of America in and for the Southern Division of the Eastern District of Tennessee, prosecuted by the United States Attorney in and for said District, respectfully represents and shows:

I.

"The Original Libel herein was filed by the United States of America through the District Attorney in and for the District aforesaid, and prayed seizure for condemnation of 40 barrels and 20 kegs of a certain article of food or food product, purported and represented to be 'Coca Cola'. Said condemnation was sought under Act of Congress commonly known as 'Food and Drugs Act'.

"Pursuant to the prayer of said Original Libel, seizure of said food product was had, after which The Coca Cola Company, of Atlanta, Georgia, intervened and gave bond as in such cases provided, whereupon said food product, with the exception of one keg, was released.

"Said seizure and condemnation were sought because of the matters in said Original Libel shown, all of which, together with other causes and grounds for seizure and condemnation are hereinafter set forth.

II.

"And in this behalf the United States of America, by this Amended Libel, represents that on or about the 18th of October, 1909, the Coca Cola Company, of Atlanta, Georgia, a corporation doing business in several States, and particularly in the States of Georgia and Tennessee, transported or caused to be transported for sale by an Interstate Carrier, from the City of Atlanta, Georgia, to Chattanooga, Tennessee, consigned to Coca Cola Bottling Works alone, or to it in connection with and for the use of itself and one or more other persons, partnerships or corporations, a consignment of 40 barrels and 20 kegs of said food product, Coca Cola.

"Said 30 barrels and 20 kegs of Coca Cola thus transported for sale were each and all labelled.

'Delicious and refreshing Coca Cola, manufactured by the Coca Cola Company, Atlanta, Toronto, Canada, Havanah, Cuba, Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the Food and Drugs Act of June 30, 1906. Our serial number is 3324.

'The Coca Cola Company,

'By Asa G. Candler, Pt.'

"Said consignment of 40 barrels and 20 kegs was an Interstate shipment and was received at Chattanooga on or about October 20, 1909, and on or about said date was seized under the original Information or Libel filed herein, and at the time of filing such original Information and of such seizure, said consignment of 40 barrels and 20 kegs of Coca Cola remained unsold or in original unbroken packages, in Chattanooga, Tennessee.

"(a) Said product contained an added ingredient, caffein, which is and is a poisonous ingredient, and might concealed, in that said food product, in the mixing and have rendered and may render said food product injurious to health.

"(b) Said product contained an added ingredient, caffein, which was a deleterious ingredient, and may render or might have rendered said food product injurious to health.

"Said food product, as above stated and described, was adulterated under the Act of Congress aforesaid, in this, caramel and other coloring substances and by the use of certain flavoring substances consisting of oil of lemon, sugar, syrup and lime juice, whereby damage or inferiority of the mixture (the food product, Coca Cola) was

"(c) Said food product had been mixed, colored, powdered, coated or stained by the use of sugar coloring, preparation, contained germs emanating from the body, perspiration and spittle of the employes of the Coca Cola Company, engaged in mixing and making said food product; and it also contained germs due to divers unsanitary conditions, such as overhanging cobwebs, dirty factory, machinery, apparatus and appliances, insects of various kinds, including flies, bees, spiders and mice: Wherefore, and by reason of said germs and other substances above enumerated, together with the unsanitary surroundings and conditions incident to manufacture, said food product was of a damaged and inferior quality, which damage and inferiority was concealed by the flavoring and coloring aforesaid.

SECOND COUNT.

"And said The Coca Cola Company of Atlanta, Georgia,

transported or caused to be transported for sale the 40 barrels and 20 kegs of said food product, Coca Cola, as in the first count hereof shown, to Coca Cola Botting Works, Chattanooga, Tennessee, alone, or for itself and another or others, labelled as in the first count shown.

"And said consignment and transportation, made for the purpose of sale, was received by the consignee or consignees, one or all, on or about October 20, 1909, and on or about said date was seized under the Original Information filed herein, and at the time of such filing and seizure, said 40 barrels and 20 kegs remained unloaded, unsold or ir original unbroken packages, in Chattanooga, Tennessee.

"The shipper was a corporation, and for a number of years past engaged in the sale of said food product, and the said product thus transported and seized was misbranded in violation of the Food and Drugs Act of June 30, 1906, passed by Congress, in this,

"(1) The label on each package, among other things contained the statement 'Delicious and Refreshing Coca Cola.' The expression 'Coca Cola' thus employed was and is a representation of the presence in said food product of the substances Coca and Cola. There are and were such substances known as Coca and Cola under their own distinctive names, but said food product 'Coca Cola' contained no Coca and little, if any, Cola.

"Therefore, said food product is (1) an imitation of the articles of substances Coca and Cola, and (2) was offered for sale under the distinctive name of said two substances Coca and Cola.

(2) Each label on said barrels and kegs bore not only the said statement 'Delicious and refreshing Coca Cola,' among other things, but also a pictorial design of Coca leaves and Cola nuts, which was and is a suggestion and representation of the presence of Coca and Cola in said food product 'Coca Cola.' The Coca leaves were thus represented to be the leaves of the Coca plant, and the Cola nuts to be the fruit of the Cola plant.

Wherefore, said pictorial design was a representation and suggestion of the presence of both Coca and Cola in said food product, when in truth it did not contain any Coca and contained little, if any, Cola in its composition, and thus said statement and pictorial design appearing on said labels and packages were and are false and misleading statements and designs regarding the ingredients and substances contained in said barrels, kegs and product.

III.

"WHEREFORE, The United States of America prayed in the original Libel that process issue and that the United States Marshal of this District be commended to seize the barrels and kegs aforesaid for condemnation, confiscation and to be dealt with as the law directs and this Honorable Court might determine, which prayer is here and now adopted and renewed, and the Honorable Court is further asked to proceed as in cases of admiralty, so far as is applicable, and that by appropriate order the article of food and food product aforesaid be condemned at the suit of this libelant, according to Act of Congress, and that the intervenor and claimant be charged with all the costs of this cause and required to pay such further sums and penalties as warranted by Statute.

"And libelant further prays for such other, further and general relief as the nature of the case may require."

Signed and sworn to.

Mr. Sizer: The answer of the defendant, gentlemen of the jury,—(Reading.)

I.

"Defendant admits the averments in paragraph I of said amended information.

II.

"Defendant admits that it is a corporation as alleged; that is shipped, as averred, forth barrels and twenty kegs of a food product, known as Coca-Cola, and that said forth barrels and twenty kegs were each and all labelled as follows:

> 'Delicious and refreshing Coca-Cola, manufactured by The Coca-Cola Company, Atlanta, Toronto, Canada, Havana, Cuba, Philadelphia, Chicago, Los Angeles, Dallas. We guarantee the contents of this package to comply with the requirements of the Food and Drugs Act of June 30, 1906. Our serial number is 3324.
>
> 'THE COCA-COLA COMPANY,
>
> 'By Asa G. Candler, Pt.'

"It is admitted that said consignment was an interstate shipment; that it was received by the consignee in Chattanooga, Tennessee, on or about the date stated in the information; and that it remained in the original unbroken packages, in Chattanooga, Tennessee, and is the possession of the consignee at the time it was seized by the Marshal under the attachment issued in this cause.

"(a) It is admitted that said food product contained as one of the ingredients, a small proportion of caffeine, but it is denied that the caffeine as so contained was or is

an added ingredient; and it is denied that the caffeine was or is a poisonous ingredient, which might have rendered or may render said food product injurious to health.

"(b) It is denied that the caffeine as so contained was or is an added ingredient, and it is denied that the caffeine as contained in the food product was or is a deleterious ingredient, which may render or might have rendered said food product injurious to health.

"(c) Defendant denies each and every averment contained in sub-section (c) of Paragraph II of said amended information."

That expression is the one that alleges that we have spiders and mice and similar insects in this compound, and that is it inferior and damaged, and things of that kind.

Mr. Miller: Includes the bees.

Mr. Sizer: Including bees and mice. (Continuing reading.)

III.

"(1) Defendant denies that the expression 'Coca-Cola,' as used on the labels on said packages, was or is a representation of the presence in said food product of the substances Coca and Cola; and denies that there are such substances known as Coca and Cola under their own distinctive names. But said product does contain certain elements or substances derived from coca leaves and cola nuts.

"(2) Defendant denies that said product is or was an imitation of, or is or was offered for sale under the distinctive name of any other article."

The Court: That is not in issue. Is there any allegation that it is?

Mr. Sizer: That it is an imitation.

The Court: I did not catch that.

Mr. Sizer: Yes, that it is an imitation of and sold under the distinctive name of another article.

Mr. Miller: Under sub-section I, count two.

Mr. Sizer: (Reading.)

"(1) Defendant denies that the labels on said barrels and kegs bear any statements or pictorial design regarding the ingredients and substances contained therein which are false or misleading in any particular.

"(4) And for further answer, defendant says that the name of said food product, as contained on the labels aforesaid, towit, 'Coca-Cola' is the distinctive name of the said product, under which said product is now known and sold, and has been known and sold for more than twenty years past, as an article of food; that said food product is

a mixture or compound, which does not contain any added poisonous or deleterious ingredient, and is not an imitation of or offered for sale under the distinctive name of any other article; and that said name is accompanied on the same label with a statement of the places where said article is manufactured or produced.

"Wherefore, defendant pleads and says that said article is not to be deemed adulterated or misbranded, under the provisions of said Food and Drugs Act of June 30, 1906.

"(5) Each and every allegation of said amended information not hereinbefore specifically admitted or denied is now denied."

That is sworn to by Mr. Asa G. Candler.

President of the Coca Cola Company.

The Court: I understood that counsel has prepared issues.

Mr. Miller: We understand, your Honor, that under admiralty rules that an issue is supposed to be—that is, joined with us.

The Court: I meant, issues of fact. I understood from the statement that counsel had prepared issues of fact to be submitted to the jury.

Mr. Sizer: I did prepare some issues of fact, which I gave Mr. Miller notice of last week.

I confess I am not very clear as to just how a case of this kind should go to the jury. As far as I have been able to gather from the opinions that I have read, arising under this Pure Food Law, it does not seem that it has been the practice to submit issues of fact, but the language of the Act is this—Section 10 provides for the institution of condemnation proceedings and the last sentence of that section is this: (Reading.)

> "The proceedings of such libel case shall conform as near as may be to the proceedings in admiralty. Either party may demand trial by jury on any issue of fact joined in such case, and all such proceedings shall be sued out of as in the name of the United States."

In order that we may conform to the requirement that is required, that issues may be submitted, we have prepared certain issues. We have prepared—I take it it is not necessary as a whole that all these separte issues shall go to the jury; I don't know whether Mr. Miller has any objection to make to them or not.

Mr. Miller: We will have certain objections to make, but at present, if your Honor will simply withhold judgment, I have no objection.

The Court: In your view of the case, how much time is

to be spent on the general issues of the case as distinguished from specific issues?

Mr. Miller: I think Mr. Sizer has very correctly stated what has been the practice heretofore, but I must say that my own crude interpretation of this statute was in accordance with his and that is that special issues are proper to be submitted.

The Court: It does not say that either party may demand trial by jury, merely—

Mr. Miller: (Interrupting.) For that reason I cannot conceive at least that it is an improper practice, and it strikes me that it might be a very proper one in the circumstances of the case. The only point is we shall disagree upon some of those issues ultimately.

Mr. Sizer: Shall I read the issues?

The Court: Yes, you may continue.

Mr. Sizer: (Reading.)

"Now comes the defendant by attorney and tenders the following statement of facts arising information and the answer thereto, and moves that they be submitted to the jury for determination:

"1. Is the caffeine contained in the food product coca-cola an added ingredient?

"2. Is the caffeine as contained in such product a poisonous ingredient which may render said product injurious to health?

"3. Is the caffeine contained in said product a deleterious ingredient which may render said product injurious to health?

"4. Has the product attached in this cause been mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed?

"5. Are there any substances known as 'coca' and 'cola' under their own distinctive names?

"6. Is the name 'coca-cola' as used on the labels on the packages containing the product attached a representtion of the presence in said product of any substances known as 'coca' and 'cola?'

"7. Does said product contain any elements or substances derived from the coca leaves and cola nuts?

"8. Is said product an imitation of any other article?

"9. Is said product offered for sale under the distinctive name of any other article?

"10. Is 'Coca-Cola' the distinctive name of the food product in controversy in this case?

"11. Do the labels on the packages containing said product bear any statement or pictorial design which is

false or misleading in any particular?

Mr. Miller: Your Honor of course knows that this proceeding shall be conducted as near as may be in accordance with the admiralty practice, and Benedict lays down this rule of practice: (Reading.)

Our courts of equity, our local courts, usually submit these issues and determine them pending the trial, but finally decide on them prior to giving them to the jury, but not in advance of the case, and I understand that practice will be agreeable to the other side, and it certainly will be to us.

The Court: The motion will be taken under advisement and not acted on at this time. If you raise any objections, you may offer them and give notice to the opposing counsel.

Mr. Miller: We will be glad to do that.

The Court: There is one averment of the libel, as I got it, in reference to cola, merely stating in the alternative that it had little, if any, cola. That would be an averment of fact, that it contained none, would it? There would be no issue to be submitted.

Mr. Miller: I don't think there would. I don't think there would be an issue arising on that point.

The Court: Well, eliminate that one matter within the pleadings now and later at the proper time, consider that. Now, gentlemen, you may proceed.

Mr. Sizer: I amended the petition so as to read—"Whether any substances known as coca and cola under their own distinctive name."

Mr. Miller: We have a copy of the issue.

Mr. Sizer: And I suppose we may enter an order showing those issues were tendered and if necessary for us to make up the issues, I take it that the minutes should show that issues were tendered, whether acted on now or not. I know that is the practice in the state court where the jury is demanded, and the practice is for the parties to make up the issues under the direction of the court, and then have the minutes of the Court to show that the issues were made up and tendered, or at least offered by counsel.

The Court: You may show that in the Bill of Exceptions, that the issues were tendered. That will be sufficient, and by agreement of counsel, action by the Court will be reserved until a later stage of the case.

Mr. Sizer: That will be sufficient.

The Court: You may proceed with the case. Counsel will bear in mind the limitation on experts on any one single point.

Mr. Miller: What was that?

The Court: Counsel has been limited to ten expert witnesses on a side on any particular fact or question of expert knowledge.

Mr. Sizer: That is on any one point?

The Court: Yes; including the experts whose depositions have been taken and those who are introduced as witnesses direct, on any issue of fact on expert testimony that has been taken in the case.

Gen. Cox: That is ten witnesses, restricting it to the witnesses here, or counting in those whose depositions were taken and read?

The Court: Yes; the Court does not intimate that it is necessary to have ten; in fact, he thinks that is more than necessary, but leaves that to the discretion of counsel. Because of the importance of this case, a more liberal rule will prevail.

Mr. Miller: There is one point that I am not very clear about, and that is whether in the introduction of the witnesses, the number of experts that will be allowed on any material issue or fact raised in the case, or, whether or not experts introduced as to one fact will be counted as an expert introduced, even though he may not testify as to another fact.

The Court: No; he will only be counted on the matters as to which he testified. The Court may later on narrow that rule; but, however, on the start that number will be allowed. That does not restrict the Court from later on reducing the number.

Mr. Miller: I will now call Mr .Dobbs to the witness stand.

PLAINTIFF'S EVIDENCE.

Thereupon, W. J. DOBBS, the first witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Mr. Dobbs, what is your age?

A. Fifty-nine.

Q. You live in Chattanooga, Tennessee?

A. Yes, sir.

Q. What business are you in?

A. Wholesale grocery business.

Q. How long have you been engaged in that business, Mr. Dobbs?

A. Thirty-seven years.

Q. What connection did you have, if any, with the firm of Trigg, Dobbs & Company, in 1909, in October and September of that year?

A. I was one of the firm.

Q. That was the partnership, was it?

A. Yes, sir.

Q. What connection did that firm have, if any, with the Coca-Cola Company, of Atlanta, Georgia, or the Coca-Cola Bottling Works, of this city.

A. We handled barrel goods here to the soda fountains.

Q. What was the arrangement by which barrel goods were received and distributed by your firm?

A. Well, they were just bought goods and furnished out to the trade.

Q. You bought the barrels of Coca-Cola?

A. Yes, sir, of the Coca-Cola Company of Atlanta.

Q. That was a Coca-Cola syrup that is dispensed at the fountains?

A. Yes, sir.

Q. Then you would distribute it to the local dispensers?

A. At the fountain, yes, sir.

Q. Now, how was that mixture of Cola-Cola syrup usually shipped, Mr. Dobbs?

A. In barrels and in kegs.

Q. To whom did you give the order when you would desire this Coca-Cola syrup?

A. To Atlanta, the Atlanta Coca-Cola Company.

Q. The Coca-Cola Company at Atlanta?

A. Yes, sir.

Q. Then did you receive an invoice for this from the Coca-Cola Company in Atlanta?

A. Yes, sir.

Mr. Sizer: Oh well, we will admit it was an interstate shipment.

Mr. Miller: Do you admit there was a transportation of this particular seizure by interstate carrier for sale?

Mr. Sizer: We have admitted the allegation of your information, as I recall it, on that subject, however, you can go on and prove it.

Mr. Miller: I am quite willing to accept your admission and not prove it, but we have to prove it in the language of the statutes.

The Court: Do you admit or deny that it is an interstate shipment?

Mr. Sizer: I think we admit specifically that it was an interstate shipment.

The Court: Under the circumstances alleged in the libel insofar as the character of the shipment was concerned.

Mr. Sizer: I think that is the exact language of the answer.

Mr. Miller: The point I am trying to get at is that the statutes prescribe that there shall be no interstate, I mean no transportation for sale by interstate carriers—the Courts have drawn a distinction between transportation and shipment. Their answer uses the word "shipment"—

Mr. Sizer: (Interrupting.) We will not admit anything more than the answer admits. If Mr. Miller wants to prove it, it is all right.

Mr. Miller. Your answer admits the shipment—I don't think that is in compliance.

Mr. Sizer: All right, you may go on and prove it.

Mr. Miller: Q. Mr. Dobbs, how was this merchandise transferred from Atlanta, this Coca-Cola product from Atlanta to Chattanooga, that your company received?

A. This lot of Coca-Cola was shipped in a car to the Coca-Cola Bottling Works of this city, and delivered to out trade by them, and we got part of the car and they got part of the car.

Q. If I understand you, you placed an order for Coca-Cola with the Coca-Cola Company at Atlanta?

A. Yes, sir.

Q. And in response to that order, you had an invoice of certain barrels and kegs of Coca-Cola that were said to be in the custody of the Coca-Cola Bottling Works at Chattanooga?

A. Yes, sir, put in their car; and that order was given to the Coca-Cola Company of Atlanta, and the Coca-Cola Bottling Works of Chattanooga was in Chattanooga, Tennessee.

Q. Did you or not receive any portion of that shipment from Atlanta, or that car of Coca-Cola that was transported from Atlanta to Chattanooga to the Coca-Cola Bottling Works?

A. We received the amount covered by our invoices, twenty barrels and twenty kegs.

Q. Twenty barrels and twenty kegs of Coca-Cola syrup?

A. Yes, sir.

Q. State whether or not that was received on or about the 20th or 25th of October, 1909.

A. It was hauled down to the store on the 21st or 26th, part of it came in the evening and part of it in the evening.

Q. In October, 1909?

A. Yes, sir.

Q. State whether or not these barrels and kegs that

were then hauled down purported to be in unbroken packages?

A. Yes, sir.

Q. As they were shipped or came from the Coca-Cola Company of Atlanta, Georgia?

A. Yes, sir.

Q. I will get to state if a United States Inspector came to your place of business on or about the 21st or 22nd of October, 1909, and took any samples from these barrels or kegs of Coca-Cola?

A. Yes, sir, we delivered him samples out of the shipment.

Q. Out of that shipment?

A. That was out of the particular shipment, as I understand it, that came in about that time.

Q. At the time this Coca-Cola was received, this particular lot, was your company supplied with other Coca-Cola syrup?

A. Well, as I remember, we did not have any in the house. You see we had shipped out two barrels of this before the officers got around, and only had eighteen when they came around.

Q. Was this particular lot of Coca-Cola transferred through the Coca-Cola Bottling Works, or did it come direct from Atlanta?

A. Yes, sir; direct from Atlanta.

Q. I will get you to state whether or not you met Inspector Lynch, of the United States Department of Chemistry, and if he or not took from one of those barrels and one of those kegs a portion of this Coca-Cola syrup?

A. He got samples, yes, sir.

Q. Did you point it out to him or identify it as a product that had come in?

A. Yes, sir.

Q. And what did he take these samples away in?

Q. Jugs, as well as I remember.

Q. Gallon jugs?

A. Yes, sir.

Q. Do you know whether or not the Inspector put any labels or marked on these, or do you know what he did with them?

A. I don't know what he did.

Q. That Coca-Cola was shipped here for sale?

A. Yes, sir.

Mr. Miller: You may cross-examine him, Mr. Sizer.

CROSS-EXAMINATION BY MR. SIZER.

Q. Mr. Dobbs, how long has your firm been handling Coca-Cola?

A. Why, something like ten years, you might say a little longer than that.

Q. You have sold a great deal of it in that time?

A. Yes, sir.

Q. It is a very widely known and popular beverage, is it?

A. Yes, sir.

Q. It is always known by this same name, Coca-Cola, and has always been known by that ever since you have been handling it?

A. Yes, sir.

Q. And whenever a man comes into your store to get a barrel of Coca-Cola, you know that he wants this particular product?

A. Yes, sir.

Q. In other words, so far as you know, it has always been sold by that name?

A. Yes, sir.

Q. In other words, it has not been sold by any other name so far as you know, except this?

A. No, sir, not to my knowledge.

Q. This name, as shown on this paper here, is the correct and accurate sample of the name under which that substance is sold, is it not, that, is, the name "Coca-Cola?"

A. Yes, sir.

Q. The name "Coca-Cola" is on every barrel and on all their advertising matter?

A. Yes, sir.

Q. It shows it as it is there?

A. Yes, sir.

Q. With the same peculiar form of letters and hyphen between the names of "Coca" and "Cola" that is on there?

A. Yes, sir.

Q. And the word "Trade-Mark" on the tail of the first "C" in the paper shown you?

A. Yes, Sir.

Q. And that is well recognized as the name and style of the name under which this article is sold?

A. Yes, sir.

Mr. Sizer: I want to pass this to the jury, your Honor.

The Court: All right, you may do so.

(Thereupon Mr. Sizer handed to the jury the paper which was identified by the witness.)

Mr. Sizer: We want to put this paper in evidence, your Honor.

The Court: It may be attached as an exhibit to the testimony of this witness.

(Thereupon the paper offered was marked Exhibit No. 1 to the testimony of W. J. Dobbs.)

BY MR SIZER.

Q. Mr. Dobbs, how many samples did this man, Mr. Lynch, take from these barrels of Coca-Cola?

A. I could not say how many he did get, more than one, but how many I do not remember.

Q. You do not know, of course, who Mr. Lynch was, or did not know, except he said he was a Government Inspector?

A. Well, I have known him in that capacity for several years.

Q. Now, you sell this product to wholesale dealers?

A. No, to the retail dealers.

Q. You are the wholesale dealer and you sell it to the retailer?

A. Yes, sir.

Q. But you don't sell it out in glasses yourself?

A. No, sir, never break the package.

Q. You sell it in the original package?

A. Yes, sir.

Mr. Sizer: Mr. Miller desires to ask him something. This witness can stand aside.

Mr. Miller: Just wait a moment.

The Court: Hold on, they desire to cross-examine you.

CROSS-EXAMINATION, BY MR. MILLER.

Q. If I understand, this Coca-Cola product which Mr. Lynch obtained samples of, more than one, was in original and apparently unbroken packages at the time he got them?

A. Yes, sir.

Q. Now, have you ever analyzed or had analyzed for you, the Coca-Cola mixture so as to know what was in it, Mr. Dobbs?

A. No, sir.

Q. So far as you know then, the formula may have been changed more than once—

Mr. Sizer: (Interrupting.) We object to that, your Honor. Here he has stated that he never analyzed it and that is not a proper question.

The Court: I do not think it material.

BY MR. MILLER.

Q. About the use of the hyphen between the words "Coca" and "Cola," can you tell whether or not that has

been used or not for any considerable length of time, Mr. Dobbs?

A. No, I could not, I never kept up close on that point. I know when you look at the advertisements, you see that dash.

Q. You mean that you see the words "Coca" and "Cola?"

A. Yes, sir.

Q. Well, I am asking you particularly about the hyphen between those two words.

A. Well, I don't know.

RE-EXAMINATION, BY MR. SIZER.

Q. Do you recall, Mr. Dobbs, any change in it?

A. Well, there could have been a change in it and I might not have noticed it.

Q. But the question is, I say, do you recall of ever seeing any change?

A. No. sir, I do not recall.

Q. You do not recall it?

A. No, sir.

(Witness excused.)

Thereupon J. L. LYNCH, the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Mr. Lynch, how old are you?

A. I am thirty-six years old.

Q. What connection, if any, did you sustain to the Government of the United States.

A. Food and Drug Inspector in the Department of Agriculture.

Mr. Sizer: Well, speak out a little louder.

BY MR. MILLER.

Q. How long have you served as Food and Drug Inspector, Mr. Lynch.

A. I was appointed in the spring of 1907.

Q. Have you had any official connection with the Government of the United States or any of its departments, prior to that time?

A. No, sir.

Q. State whether or not you were in the City of Atlanta, Georgia, about July, 1909?

A. I was.

Q. Mr. Lynch, were you or not at the factory of the Coca-Cola Company, the claimant in this case, during the month of July, 1909?

A. I was.

Q. About what date of the month of July, 1909, were you there?

A. The 19th. (Examining a paper.)

Q. What is the construction of that factory, that is, how many stories does it consist of?

A. A basement and two stories, two stories from the street.

Q. How is that factory surrounded on all sides? How many sides of it are—streets on, in other words.

A. Edgewood Avenue—it is a sort of triangular shaped building, Edgewood Avenue on two sides and Coca-Cola Place, and then the rear is a yard.

Q. State if you went through the factory from top to bottom while you were there?

A. Yes, sir, I did.

Q. Did you while there have any conversation with any representative of the Coca-Cola Company, and if so with whom?

A. With young Mr. Candler.

Q. Do you know his given name?

A. I think it is Howard.

Q. Mr. Howard Candler?

A. Yes, sir.

Q. State what official connection, if any, he held with the Coca-Cola Company?

A. I understood he was the Superintendent or Manager.

Mr. Sizer: We object to what he understood, may it please the Court.

The Court: Yes, I sustain the objection.

BY MR. MILLER.

Q. Well, state what he did and what duties he performed or what office he performed, and what duties he exercised in respect to that factory?

A. He seemed—well, he had more authority—managed the factory.

Q. Acted as manager of the factory?

A. Yes, sir.

Q. Now while there, did you go through the factory with Mr. Candler?

A. I did.

Q. Did you or not tell him what you were there for, that is, to learn how Coca-Cola was made?

A. I did.

Q. State if, in showing you through the factory, Mr. Howard Candler showed you the arrangements for mak-

ing this Coca-Cola syrup and how it was made?

A. He did.

Q. State if you disclosed to Mr. Candler what your official connection was with the Government?

A. I did.

Q. Now, where did you commence to make your inspection? or tour of inspection when you went through that factory, that is on what floor?

A. Upon the first floor.

Q. Does that mean the first floor above the basement, or does that mean the basement?

A. It means above the basement, the first floor from the street.

Q. How high is that floor above the street?

A. It is higher than the street. A few steps go up to it, I don't know just how many.

Q. Well, probably how many?

A. A half a dozen.

Q. And those steps that go up are many inches high, four to six?

A. I could not say on that, but ordinary height stone steps.

Q. Would you say about four to six inches in thickness?

A. About six inches, I would say.

Q. Now what is done on the first floor of this building, where you started, as respects the mixing and compounding of the Coca-Cola syrup?

A. The syrup is made on that floor.

Q. How is the syrup made?

A. It is made in a copper kettle, a large metal kettle, which stands almost in front as you enter from the street.

Q. It stands where?

A. Almost in front of you as you enter from the street.

Q. And in what portion of the building is it?

A. Well, I didn't get your meaning.

Q. I say, in what portion of the building is it, in the center or the corner?

A. No, it is in the corner, away from the door. There is an entrance on Coca-Cola Place also.

Q. Yes?

A. It is near to the entrance on Coca-Cola Place, the elevator entrance there.

Q. What is Coca-Cola Place, state whether or not that is an open street or court, or commons there on Coca-Cola Place?

A. It is a city street.

Q. And the syrup made in that kettle, what are the ingredients that go into it?

A. Sugar, coloring, and water.

Q. And how are they put in there?

A. The water comes in pipes from the city supply.

Q. How are these pipes connected with the kettle?

A. Imbedded down into it.

Q. They are overhead pipes?

A. Yes, sir.

Q. How are the other ingredients that go to make up the simple syrup placed in the kettle?

A. Flush with this kettle or nearly flush with the kettle is a wooden platform, and sugar, several barrels of sugar are stored on that platform. There was a colored man or cook making the syrup. The sugar is put in it by knocking the head out of the barrel and dumping over this platform.

Q. Did you mean into the kettle?

A. Yes, sir, and the caramel coloring, or sugar coloring, was kept in the barrel sitting by the side of the kettle, and that is put into the syrup by pouring into a metal measure and dumped into the kettle.

Q. Now, this colored man that was doing that dumping of the sugar and caramel coloring, you call a "Cook." Why do you call him a cook?

A. That is the term that Mr. Candler applied to him.

Q. Was there a cooking process that was going on there in connection with the manufacture of the Coca-Cola?

A. Yes, sir, they cook that syrup.

Q. Well, how do they do that, what was the arrangement?

A. By steam.

Q. How was the steam concentrated at the kettle?

A. I think it is a steam jacket arrangement, an inner kettle arrangement.

Q. An inner kettle arrangement?

A. Yes, sir.

Q. That is a jacket that comes on the outside of the kettle?

Mr. Sizer: I object to that, he is leading the witness, let the witness explain, Mr. Miller. Don't lead the witness.

A. The Court: Yes.

Mr. Miller: I beg your pardon.

BY MR. MILLER.

Q. Just explain how the steam was applied to the sur-

face of the kettle or concentrated or brought in concentration against it?

A. By means of a steam jacket, a steam jacket kettle.

Gen. Cox: Will you talk out a little louder.

The Witness: Yes, a steam jacket I said.

BY MR. MILLER.

Q. This negro cook that was on the platform and dumping the ingredients into the kettle, could you state how he was dressed?

A. Well, very scantly, a dirty undershirt, his shoes were badly broken, the bare feet were sticking out through them in parts, and he had on an old, dirty pair of trousers.

Q. State whether or not he was perspiring?

A. Yes, freely.

Q. Could you state whether or not he was chewing tobacco?

A. Yes, sir.

Q. Did he expectorate from time to time, and if so, where?

A. Whenever he happens to want to, just wherever it fell, on the platform and on the floor.

Q. Was that the same platform that he was dumping these barrels from over into the kettle?

A. Yes, sir.

Q. Now, in dumping the barrels, or contents of the barrels, into the kettle, state whether or not a portion of the contents were left on the platform?

A. Yes, sir, a considerable amount of the sugar fell on the platform.

Q. And how would the cook get that sugar on the platform, the sugar that fell on the platform? How would he get it into the kettle?

A. Shove some of it with his feet and also part of it in with a board.

Q. With his feet?

A. Yes, sir.

Q. Now, state whether this caramel matter that was in the barrel nearby was also dumped into the kettle from the original container by this same cook, and if so, how?

A. He poured it out through the bung hole of the barrel into a measure, and then from the measure into the kettle.

Q. Well, did any of it spill from time to time as he would pour it out?

A. Yes, sir, it would run down the side of the barrel and alongside the measure.

Q. Did it or not run out on this platform?

A. No.

Q. Then it was not on the platform?

A. No.

Q. Well, now, state as to whether you observed or not there had been a washday at the Coca-Cola Company's factory, or whether or not this platform had been washed or mopped up at any time, from time to time, as a result of your observations in that respect?

A. It looked to me like it had never been washed—the sugar had been ground in there by walking on it.

Q. Well, how about the mixing after these ingredients were poured into the kettle, was there or not any instrumentality used to mix them such as a spade or a shovel or a ladle or what?

A. I can't recall the mixing in that kettle. As I remember, it was done by a long, wooden spade.

Q. And how about the surface of the kettle and this spade, this instrument for mixing, state whether or not they appeared to have been washed at any time lately?

A. I would not describe the spade.

Q. Well, how about the surface of the kettle from the top down?

A. The kettle appeared as though it had never been thoroughly washed or scraped for some time. There was crystallized sug.. or syrup crystallized all over the edges of it, and in the joinings, the outlet, and along the different pipes that was about it.

Q. Were there any water closets, that is toilets or the use of the white and colored employes, and if so, whether or not they had any on that floor?

A. Yes, one on that floor.

Q. How was it disconnected with it, with the place where this syrup was made up?

A. The syrup is—I mean the closet is over against the wall, it is the flush bowl type, the ordinary type, and the door is left open.

Q. The door was left open?

A. Yes, sir.

Q. State whether or not that toilet opened into the factory building?

A. I could not say which way the door swung, Mr. Miller.

Q. Did it swing to the outside of the building on the street.

A. No, sir, it swung into this factory room, it opened into this factory room an dventilated into the factory room.

Q. Ventilated into the factory room?

A. Yes, sir.

Q. Was there any other method of ventilation except into the factory room?

A. No, sir.

Q. Now, what was the condition on the basement floor of the building and what processes are there to make up the Coca-Cola syrup?

A. The cooling tanks are down there, and the syrup is filled there, is put in the containers. The cooperage room is in the basement also.

Q. How was this syrup conveyed from the kettle, as you have described in the corner of the building on the first floor, down into the basement where the Coca-Cola syrup is made up?

A. By means of pipes.

Q. Now, when you got down into the basement, just explain that?

A. Now, when you got down into the basement, these pipes extended from the mixing kettle above to the vats or receptacles below where the syrup is made up.

Q. State how those pipes are connected in the basement with this vat or receptacle in which the Coca-Cola syrup proper is made?

A. The syrup runs from the kettle on the first floor through pipes into these tanks, these cooling tanks in the basement.

Q. And how many cooling tanks did they have.

A. Ten.

Q. How were these cooling tanks situated with respect to the outside of the building?

A. They are suspended from—they are all suspended from the ceiling of the basement which has stringers under the floor above. They are located to be near—some of them are—to be near the windows that open into this basement along the Edgewood Avenue and on Coca-Cola Place.

Q. Well, state then whether or not these windows are kept open or closed during the mixing process?

A. These windows were, at the cooling process, they were opened.

Q. How did they open, to the ouside or inside?

A. They opened in.

Q. How did they open, did they open backward or forward like a transom or slip up and down?

A. They opened down like a transom.

Q. How close were the tops of these cooling tanks to the first floor of the building, that is, would you say when you went in and when you went up these steps and went in from the street, about how close were they?

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A. About six inches below these stringers or ceiling.

Q. What formed the ceiling of that basement or the overhead of it?

A. The stringers and the floor. The bottom of the first floor forms the ceiling.

Q. Then, it is just as if you had stringers put across and the floor above is nailed onto them?

A. Yes, sir.

Q. There is no ceiling or plastering down below at all?

A. No, sir.

Q. What was there, if anything, to prevent particles of dust or dirt that would drop from your feet in walking over the first floor when you went in, to seep through and fall into these vats or cooling tank, six inches below?

A. Nothing, absolutely nothing.

Q. State whether or not there were any cobwebs or spider webs suspended round from these cooling tanks in that basement room and in the vicinity of it?

A. Very general all through it.

Q. Now, what ingredients were placed in the mixing or cooling tank making up the Coca-Cola mixture proper in connection with the simple syrup that had been manufactured up on the first floor.

A. In the mixing tank?

Q. Well, now, the mixing tank, or in other words, that went to make up the Coca-Cola mixture, tell us as to how that is made up after it leaves the kettle that you describe on the first floor?

A. I have to depend of course, on Mr. Candler had said for this information, he gave it to me very freely.

Q. What did Mr. Candler tell you and what did you observe?

Mr. Sizer: I object to what Mr. Candler told him.

Mr. Miller: I submit it is competent for two reasons: first, competent because he was generally in charge of the business of the claimant, and second, I think it is competent under the provisions of this act, Section 12 of the act, which says:

> "When construing and enforcing the provisions of this act, the acts, omission or failure of any officer or agent of other person acting for, or employed by any corporation, company, society or association, within the scope of his employment or office, shall in every case be also deemed to be the act, omission, failure of such corporation, company, society or association, as well as that of the person."

Mr. Sizer: (Interrupting.) What section is that?

Mr. Miller: Section 12 of this Act. I say that in this case Mr. Candler was acting within the apparent scope of his authority, and he has been described here as the General Manager of this corporation; when he goes to tell about existing processes, and then this witness tells him his business there, and he goes on and tells him how it is made, this act would be binding on the corporation. And certainly, that is, to my mind, is fair, the fair and natural interpretation of this language. It is very true that is not broad enough to include a statement, that is to say, it does not use the word "Statement," but any acts or omission.

The Court: I don't think that was intended to refer to any question of negligence—I think the statement made by an agent of a company or of a narrative character as to a historical statement of facts, is competent.

Mr. Miller: We note an exception.

BY MR. MILLER.

Q. I understood you to say, Mr. Lynch, that Mr. Candler told you what his connection with the Company was?

A. He did — yes, sir.

Q. And that was what?

A. Manager.

Mr. Sizer: We object to that.

Mr. Miller: We have shown now, we submit, that this is not only a statement of the Manager, but certainly it shows a course of conduct which could not be reconciled with any other position except that of General Manager.

The Court: Even in the light of a General Manager's statement — I would not consider it competent — if you have any authority to present showing it is competent, you might furnish me the authority and I will consider it.

Mr. Miller: All right.

BY MR. MILLER.

Q. State whether you observed that there other ingredients conveyed into this mixture aside from the simple syrup that was made up on the first floor before it was turned out as Coca-Cola syrup.

A. Yes, sir.

Q. Now, how were these other ingredients conveyed into this mixture, or the place where they were mixed up, to form Coca-Cola syrup, give us a little detailed statement about that?

A. On the first floor, the opposite corner from the kettle, is a sort of a laboratory. In the corner of this laboratory is built a brick vault, and in this vault is stored the different essential oils. In each corner of this room there

on the first floor, there is a funnel arrangement — a funnel shaped arrangement leading down into the mixing tank into the basement, for the different essential oils, known as Merchandise No. 5 and phosphoric acid, lime juice, etc., is conveyed into this mixing tank through these funnels. The caffeine was separated in two different cans or containers, one large tin can, I should say, holding about fifty pounds. There was a patent metal drum arrangement with a lock top — I never saw it anywhere but in this place. The caffeine was measured into the box, which was an ordinary grocery box and then weighed on the platform scales, that stand in this laboratory, and is put into the syrup after being mixed with water or dissolved in solution of water. There is also commercial alcohol which is put with these different oils or flavors, enough to cut the different oils. That goes through the funnels into this mixing tank.

Q. State whether or not the packages of caffeine that you have described were marked "Caffeine"?

A. The cans were labeled "Caffeine". The drum was labeled Mer. No. 3.

Q. What is the color, or what was the color of the caffeine that was used there?

A. It is a white, crystallized looking powder.

Q. How much of that caffeine was used in making up a particular quantity of the mixture known as Coca-Cola syrup?

A. These scales were set — I will have to refer to my notes, Mr. Miller.

The Court: While the witness looks at his notes, I think I will call your attention to the case in 20th Wallace, 558, and cases cited 16th Cyt., 1008, and other cases.

Mr. Miller: We have some authorities which I will be pleased to submit a list of to adversary counsel and Your Honor after adjournment.

The Court: All right.

BY MR. MILLER.

Q. Have you found your notes, Mr. Lynch, from which you could refresh yourself?

A. Yes, sir.

Q. Then tell us the ingredients, I mean the quantity of caffeine that was used in making a particular quantity of the mixture which is popularly known and sold as Coca-Cola syrup, and which went out of that factory branded and labeled as such.

A. These scales were a sort of a two beam type, the P on the lower beam set at thirty and a half pounds, and the P on the upper beam at three-quarters of a pound. While

going through the factory, the nigger weighed this out. And the P's were shifted over very quickly as I started to come around.

Q. Who shifted them over?

A. Mr. Candler.

Q. Mr. Candler who was with you, was that Mr. Howard Candler?

A. Yes, sir.

Q. Is that the same Mr. Candler who said he was the General Manager?

A. Yes, sir, the box would tare at five pounds.

Q. That is the box alone?

A. Yes, sir.

Q. You mean would weigh that?

A. Yes, sir, and the caffeine would be twenty-five pounds to twelve hundred gallons of the syrup.

Q. Now, how was that caffeine measured; you say it was poured into this box, did I understand you?

A. Yes, sir, taken out of the retainer.

Q. And put in the box?

A. Yes, sir.

Q. And where was the box then placed?

A. On the scales.

Q. And the scales were set to weigh what?

A. Thirty and a half on the lower beam and three-quarters of a pound on the top.

Q. To what extent had this grocery box in which the caffeine was measured; to what extent had it been filled when Mr. Candler shifted over the P's on the beam?

A. Oh, it had already been weighed.

Q. Do you know what was done with that caffeine, now, after it was weighed out?

A. No, sir, I didn't see it, the nigger took it out in this room.

Q. Took it out of the room?

A. Yes, sir, took it out of the laboratory.

Q. Was that nigger down in the basement or up on the first floor.

A. Yes, sir, on the first floor.

Q. What nigger was that, the cook?

A. Yes, sir, the cook.

Q. That was the man that was working at the kettle?

A. Yes, sir.

Q. What did you say?

A. I said yes, sir.

Q. Did Mr. Candler say to you whether or not that receptacle filled with caffeine as you saw it, was used in making some twelve hundred gallons of Coca-Cola syrup.

Mr. Sizer: I object to that.

The Witness: Yes, sir.

Mr. Miller: Wait a minute, Mr. Lynch. I understood Your Honor to hold that was competent.

Mr. Sizer: We object to it for two reasons.

The Court: If that statement was made with reference to the transaction going on at that particular moment, as to what was being used at that time, the manufacturing then being carried on, but merely made as a general statement, a general narrative as to the method carried on, as to the general conduct of the business, I hold it is incompetent.

Mr. Miller: Your Honor has heard the witness say that the cook came there and got it.

Mr. Sizer (interrupting): Mr. Miller, the question is very leading. Mr. Miller should ask the witness as to what was said in that connection.

The Court: Well, if you want that ——

Mr. Sizer (interrupting): We are contending that anything Mr. Candler said as to the customary way of making Coca-Cola would be immaterial and irrelevant.

The Court: I so rule, and I also rule if he made any statement about any particular thing being done at that time, it is competent.

Mr. Sizer: We submit that is incompetent because it has not been shown that particular Coca-Cola being made at that time was the Coca-Cola attached in this case, so it would be immaterial how they were making that particular Coca-Cola at that time.

The Court: I think that would be a circumstance. You may answer the question provided Mr. Candler's statement was made to you with reference to the particular transaction then going on, as to what that particular caffeine you saw was being used for them. If he merely made a general statement as to what they did with caffeine, you will not answer, you may so state and need not give any particulars.

The Witness: He was not referring to that particular lot of caffeine.

The Court: Then I hold it incompetent.

BY MR. MILLER.

Q. Did you have any conversation about this particular batch when he shoved the P's, when you verified the weight of it, as to what was to be done with it?

A. Yes, I asked him what was that, and he said caffeine that was going into the Coca-Cola.

Q. Was that the particular batch that they were making at that time?

A. I could not say.

Mr. Sizer: Then I object to his answer.

The Court: I think that the statement that particular caffeine was to go into Coca-Cola, is not very material, as it is agreed that caffeine is in there.

Mr. Sizer: Yes.

BY MR. MILLER.

Q. State what became of this caffeine that had been measured out of this box, that is, what was done with it, where did this negro take it to?

A. Into the factory room.

Q. And in the direction of this syrup tank?

A. Yes, sir.

Q. State whether or not the box was full or to what extent it was filled?

A. Why, I could not say, it was pretty near full.

Q. State whether or not you had occasion to observe whether the quantity of caffeine put in was accurately weighed; say whether you did or didn't, and tell why and how?

A. I did not on this occasion.

Q. Well, did you on other occasions between that and time of this particular seizure, between that time and the time this particular seizure was made?

A. Yes, sir.

Q. What were the circumstances of your observations thus made.

A. I was later on in the factory, between this visit and the time of the seizure, but I did not go up into the office at that time; I went down stairs. I was talking to the fellow that measures it, and I saw that negro come along and take out that caffeine and put it on the scales.

Q. And was this the same negro cook?

A. Yes, sir.

Q. It was the negro cook?

A. Yes, sir. I called him back and I saw that, and there was a difference of a pound and a half, that was as near as he got it.

Q. A difference of a pound and a half, what do you mean by that?

A. In the scales where he carried the caffeine, he took the weight, twenty-six and a half pounds, whereas it should have weighed twenty-five.

Mr. Sizer: I object to that.

The Court: Yes, the objection is sustained.

BY MR. MILLER.

Q. State how that was?

A. The box tared at five pounds, the scale stood at thirty and a half pounds — the box, the gross weight was actually thirty-two pounds, that the box tared at five and a half pounds, making a caffeine net at twenty-six and a half pounds.

Q. Now state if there were any toilets for the help on that basement floor, and if so, how they were arranged there?

A. Yes, there was one toilet in the basement of the same type as the one above, and it opened into the basement ventilated into the basement rather, and the floor was very dirty and littered up and evidently had never been scrubbed.

Q. What was the floor made of in the basement?

A. The floor was made of concrete.

Q. Was it smooth and level, or otherwise, describe it?

A. No, sir, it was badly worn, with holes in it, drain or cess pool in it, and on account of these holes, had large cess pool practically, so that the water would remain in these pools and not drain off.

Q. State whether or not that water appeared to be stagnant?

A. I could not say; I could not judge that on account of the other odor, the odors of the paint, the turpentine and different oils used; you could not get any foul odor.

A. You say there was a cess pool in the center; what did that connect with?

A. The city sewer.

Q. Was there anything to prevent the sewer gas from the city coming up into the basement of the factory?

Mr. Sizer: I object to that question.

The Court: On what ground:

Mr. Sizer: There is no proof that any sewer gas ever came up. He has asked him if there was anything to prevent the sewer gas from coming up.

The Witness: Well ——

The Court: I do not see how this witness would know that.

Mr. Miller: I am asking if there was any gaseous substances in the sewer, if there was anything to prevent it by reason of the connection, to keep it from coming right into the factory.

The Court: Well, I do not see how he could tell as to what traps there were under the floor, and I sustain the objection.

Mr. Miller: We desire to note an exception to the ruling of the Court:

BY MR. MILLER.

Q. What was the arrangement?

The Court: The mere fact that he saw nothing on the surface would not indicate anything.

BY MR. MILLER.

Q. What was the arrangement by which the water that did drain from this basement went from the basement into the sewer?

A. The sewer had a perforated plate.

Q. Around what?

A. Round the plate or cap.

Q. How large were the apertures in there?

A. Just about the size of the top of a man's finger, the ordinary cess pool cover, that is used for a covering.

Q. What did the help in this factory consist of, how many employes?

A. Well, I will have to look that up.

The Court: We will take a ten minute recess.

(Thereupon the Court took a recess for ten minutes).

AFTER RECESS.

Q. Are you ready to answer the question, Mr. Lynch?

A. Have the question repeated, please.

(The question was then stated to the witness as follows: "Q. What did the help in this factory consist of, how many employes"?)

A. Three whites and eight negroes.

Q. Three whites and eight what?

A. Three whites and eight negroes.

Q. How were the negroes dressed?

A. There was no attempt made to furnish the help with any clean clothing or uniform clothing; they were dressed as such ordinary negro laborers dress.

Q. State whether or not they were using tobacco?

A. The most of them were.

Q. Where did they expectorate generally; were any cuspidors or spittoons provided for them?

A. No, sir, they just let it, spit all over the floor wherever it happened to fall.

Q. Were these darkies clean or otherwise?

A. They were anything but clean; it was a hot day and they were perspiring, and their shirts, all had on undershirts, some with the sleeves cut out, and just a paid of trousers and an undershirt was about all they had on.

Q. Now, these windows that were adjusted so as to open back near the cooling tank; I will ask you whether or not there was any protection to avoid material, such as dirt, dust, or anything else that was on the outside from coming in these windows and settling in the cooling tank?

Mr. Sizer: I object to that question. He might ask him whether there were any screens on the windows, but I object to the balance of the question, because it is not competent, there is no evidence there was any dirt or anything flying around there.

Mr. Miller: Well, I will just prove that, if you require it.

The Court: The question is hypothetical, and I will overrule the exception.

Mr. Hirsch: We take an exception.

BY MR. MILLER.

Q. Was there any protection against that, Mr. Lynch?

A. No, sir, the tanks were uncovered and the windows were not screened, just iron bars across them.

Q. What were the conditions with respect to dust and dirt and droppings from animals that passed by, if any?

A. Coca-Cola Place is an unpaved street; it is macadamized, I think, dust and dirt on it, while Edgewood avenue is paved. It is a peculiarly windy corner on windy days on account of that triangular shape, the odd location of the building, and on windy days — it depends on the wind, the sweepings and everything go right in through the cellar window in on the syrup that is cooling.

Q. How about the stairs that lead down from the first floor, or story, into the basement; how were they kept; in what condition were they?

A. They were covered with several inches of accumulation of dirt so that I had considerable difficulty in getting down there. I was afraid of slipping down, and had never been washed, cleaned, or scrubbed.

Q. Now, after this mixture is put into the cooling tanks and cooled off, then what is done with it?

A. It is drawn into a mixing tank.

Q. And what is the mixing process?

A. A large tank fitted with a stirrer to stir up the ingredients put into the syrup after it has cooled.

Q. I will ask you whether or not you took any photographs, or had your camera and took some snap-shots of this building, showing its location with respect to the street, its height, and so forth?

A. I did.

Q. Well, probably I can do it better than the Marshal;

I will pass first to you the first photograph of the building, and will ask you if that is a photograph of the building as you took it, and if it represents in outline the building from the outside?

A. It does.

Mr. Sizer: I do not like always to be objecting to the form of the questions, but I suggest a proper form, and the proper question would be to ask him what it does represent, not what he thinks it represents. It is not for Mr. Miller to state to the witness what he thinks it represents.

The Court: Yes, that is a better form.

Mr. Miller: Yes, I am pleased to do it.

The Court: Just offer them to him in a bunch and ask him about them.

BY MR. MILLER.

Q. If you can identify these four photographs, mark them Exhibits one, two, three and four, and tell what they represent?

A. I can identify them. This one, marked Exhibit one, is a picture of the building, as much of it as I could get in my camera, showing the location of the building, the line of the building on Edgewood avenue, and on Coca-Cola Place, and also showing the five windows which are marked one, two, three, four and five by the side of which these cooling tanks; just inside of which these cooling tanks are located almost near enough that I could reach in and touch the syrup in these cooling tanks.

Q. You mean from the outside?

A. Yes, sir, and also shows on Coca-Cola Place dimly these windows.

Q. Let us have them. Maybe these gentlemen would like to inspect them before the jury sees them.

Mr. Hirsch: It does not make any difference.

Mr. Miller: I will pass it to the jury and then you can inspect it later.

The Witness: Ex. No. 2 is just a portion of the side of the building on Coca-Cola Place, showing one of the windows and bars in it, and the window can be seen or the glass can be seen let down, and the tank or tanks are right by the side there. It shows the windows.

Q. It shows this contiguity of the window and the tank?

A. Yes, sir. This is No. 3, and is another view of the same thing taken of a portion of the building on Coca-Cola Place, and shows more clearly that same window. No. 4 shows the entrance to the building and shows the length of the building on Coca-Cola Place, and shows two windows

and also shows the entrance on Coca-Cola Place near which is located the platform and the syrup kettle.

Q. That is the platform on which the cook stood?

A. Yes, sir, that shows the entrance there.

Mr. Miller: When you gentlemen finish with them, (referring to the jury) get them together and we will hand them over to the gentlemen on the other side.

BY MR. MILLER.

Q. Now, as to this inspection of yours of July, 1909, I will get you to state if you went to that factory with Dr. L. F. Kebler, between that date and the time that this seizure was made?

A. Yes, sir.

Q. Can you tell us about when that was?

A. Yes, I can give you the exact date. (Examining memorandum.) That was October the twentieth, 1909.

Q. What position did Dr. Kebler hold ——

Mr. Sizer: (Interrupting.) That is subsequent to the date of the shipment.

The Witness: October 20th, 1909.

The Court: What was the date of the seizure?

Mr. Sizer: The averment states the seizure was made on the 21st — the shipment was made on the 18th.

Mr. Miller: I don't think it was made on the 18th.

The Witness: The shipment was made on the 19th.

Mr. Sizer: And was received in Chattanooga the 20th day of October, 1909. I believe it was on the very day the information was filed, the 21st. They were there on the day this shipment was received in Chattanooga.

BY MR. MILLER.

Q. Well, I will ask you whether or not in connection with Dr. F. L. Kebler, you went to this factory after your inspection of July, 1909, about which you have already testified, and before the shipment was made that was seized in this case?

A. And before the shipment was made?

Q. Yes, before the shipment but after your inspection of July, 1909, if you went in there with Dr. Kebler?

A. The shipment was made on the 19th and I was in there on the 20th of October; the car was loaded on the 19th.

Q. How was that?

A. The car was loaded on the 19th.

Q. Yes?

A. And I went in there on the 20th with Dr. Kebler.

Q. On the 20th with Dr. Kebler?

A. Yes, sir.

Q. That was the date of your and Dr. Kebler's visit?

A. Yes, sir.

Q. Now, what were the circumstances of that seizure — did you see the car being loaded with this Coca-Cola syrup which was manufactured in the basement of this building?

A. I saw a car being loaded, yes, sir.

Q. What was that?

A. Wabash 64784.

Q. To whom was that car consigned, Mr. Lynch?

A. The Coca-Cola Bottling Works at Chattanooga, Tennessee.

Q. Now, after you saw that car being loaded, what did you do?

A. I wired the facts of the loading and shipment into the Bureau at Washington.

Q. Were these packages that you saw being put into that car, original packages and barrels and kegs of Coca-Cola, or not?

A. Yes, sir, they were.

Q. Of Coca-Cola syrup?

A. Yes, sir, they were so marked.

Q. And after you wired the department at Washington, what did you next do?

The Court: I don't see that it is material what he did.

Mr. Miller: I mean with reference to this particular shipment. we are only trying to identify the shipment.

The Court: If there is any particular thing you want to ask him, just ask him.

BY MR. MILLER.

Q. What did you next do; do not state the instructions you got, but what did you next do with respect to this shipment?

A. I went to Knoxville and conferred with J. R. Penland.

Q. Who was then United States District Attorney for Eastern Tennessee?

A. Yes, sir.

Q. Then where did you come to?

A. He and I came here to Chattanooga.

Q. And after you came to Chattanooga you found the same car that was being loaded at Atlanta with these original packages?

A. Yes, sir.

Q. And what was being done with that car?

A. It was being drawn away by a shifting engine away

from the track of the Coca-Cola Bottling Works.

Q. Now, if you at that time made any investigation as to the contents of this car and took any samples from the contents of the car, just tell us what you did respecting the contents, how you identified it, and what you did with them?

A. There was nothing in the car, the car was empty. I went to the Coca-Cola Bottling Works, and met Mr. Johnson and attached twenty barrels in their possession, and from there we went to Trigg, Dobbs, and from there — I said twenty barrels, nineteen barrels only; they used one. Nineteen came to the Coca-Cola Bottling Works; and from there went to Trigg, Dobbs, and attached eighteen barrels and twenty kegs and drew samples from the lot in the possession of the Coca-Cola Bottling Works, and sealed them in the presence of Mr. Johnson, and went from there to Triggs, Dobbs & Company and drew two samples, one from a barrel and one from a keg, and I sealed those in the presence of Mr. Dobbs and his warehouse receiving clerk.

Q. Was that Mr. W. J. Dobbs that was examined here this morning?

A. Yes, sir.

Q. Now do I understand you correctly, that you took a gallon from a barrel and a gallon from a keg of that shipment that was poured out by Mr. Dobbs?

A. Yes, sir, I did.

Q. How did you arrange to prevent any bacteria or anything of that sort being in those jugs, which you shipped into Washington, and if you made any efforts in that direction, tell what they were?

A. I purchased these three jugs from a wholesale whisky house in town; they were new jugs, and I sterilized them in the Coca-Cola Bottling Company's plant with steam, used their steam jet and allowed to boil in water for several minutes. I steamed my cork that I stopped the bottle with. They had an arrangement of drawing the syrup through a faucet attachment which you could put in the barrel, and I sterilized that in taking the samples. I also took that with me and used that down there at Trigg, Dobbs & Company and sterilized it again, stuffed both ends of it, the faucet end and the other end, with sterilized cotton, so as to prevent any contamination in carrying it, and I used that to draw the syrup at Triggs, Dobbs Company.

Q. And you took how many samples at Trigg, Dobbs?

A. Two.

Q. And one from a keg?

A. Yes, sir.

Q. And one from a barrel?
A. Yes, sir.
Q. What size were those samples, what quantity?
A. A gallon.
Q. Did you take a gallon from the keg and the barrel?
A. Yes, sir.
Q. And now then, what is the method adopted and what did you adopt as your method to transmit these samples to the Bureau of Chemistry at Washington?
A. My seal was a regulation Department seal, what is known as the Inspector's Interstate Sample Number shipment; put that on them, and shipped them by express to the Drug Division, Bureau of Chemistry.
Q. To what carrier did you deliver those samples?
A. The Southern Express Company.
Q. Was that here in Chattanooga?
A. Yes, sir.
Q. Now, have you a sample of the seals that you used in that transmission?
A. Yes, sir.
Q. Now, just explain to the jury how it is that when a sample is sent in that you are able to identify it afterward when it came back from the Bureau of Chemistry, as being the identical package that you sent in.
A. We have this book furnished us by the Department which contains seals, each numbered serially, and we write it in there, use a transfer sheet, and keep it as duplicate in the stubs of this, and the number of this sheet three and we paste that on the containers of the sample, and we put that same number on our seal, and give the date, and give our signature, then paste this seal over the mouth of the vessel so it can't be opened without breaking that seal; that number is on the seal and that number as there duplicated. This is retained in my possession. That number identifies it all the way through. It identifies that sample, no other inspector has that number or that seal.
Q. What were the I. S. or interstate sample or inspector's seal, as you seem to use the two, that you put on the keg and the one that you put on at the business place of Trigg, Dobbs & Company at Chattanooga?
A. 3967-B was the keg and 3968-B was the sample taken from the barrel.
Q. What was the number of the samples that you drew from the place of the Chattanooga Bottling Works where Mr. Johnson pointed out to you the shipment?
A. 3966-B.
Q. Now, when you drew these samples, if I understood

you correctly, you put your own seal and signature across the cork?

A. Yes, sir.

Q. And the mouth of the vessel in which these samples were contained.

A. Yes, sir.

Q. Will you be able to identify your signature, your seal, now if you were to see it?

A. Yes, sir.

Mr. Miller: I will turn the witness over for cross examination with the reservation that we will send for the jug in which it was shipped and ask about them before the close of the examination in chief.

Mr. Sizer: What is that?

Mr. Miller: With the right when he presents the jugs in court, we have sent for them at the hotel, and when he identifies those — wait a minute, though.

BY MR. MILLER.

Q. Oh, yes, there is one more point. After these samples were taken out, I will get you to state whether or not a keg of this mixture was released and if you shipped that to any point, and if so, where?

A. I got an order from the Court allowing me to take a keg from Trigg, Dobbs and from this lot on November 29, 1909.

Q. And what did you do with that?

A. I sealed that keg in the same manner, I. S. 3980-B, and sent it in to the Drug Division by the Southern Express Company.

Q. To Washington?

A. Yes, sir.

Q. And you would be able to identify that also?

A. Yes, sir, I will.

Q. Did you make any change in the contents of these packages after you drew them off?

A. Absolutely none.

Q. State whether or not these packages from which they were drawn appeared to be in perfect condition, that is whether they appeared to have been opened after shipment by the Coca-Cola Company.

A. No appearance of them being opened.

Mr. Miller: Well, that is all, with that reservation.

CROSS EXAMINATION.

BY MR. SIZER.

Q. What did you say was the date of your first visit to this factory?

A. Let me see (examining memorandum); I see I first inspected it on July 19, 1909.

Q. How did you happen to go there on that date?

A. I received instructions to make a sanitary inspection of that plant.

Q. Did you go and acquaint the representatives of that Company with your purpose?

A. I certainly did, yes.

Q. And Mr. Howard Candler went through the factory with you?

A. Mr. Candler went through the factory with me.

Q. He did?

A. Yes, sir.

Q. Mr. Howard Candler, was it?

A. Yes, sir, Mr. Howard Candler.

Q. He went through the factory with you?

A. Yes, sir.

Q. And how long did you take in making that examination?

A. Oh, I was there the greater part of the day, the greater part of the forenoon.

Q. You say the greater part of the day, you mean the greater part of the forenoon?

A. I was there the whole forenoon.

Q. The whole forenoon?

A. Yes, sir.

Q. Now, about how many hours — when did you get there and how long did it take you to get through?

A. I can't say that.

Q. You went there about nine or ten o'clock in the morning?

A. I guess nearer nine o'clock than ten.

Q. And got through about noon?

A. (Looking at the paper.) Pardon me just a moment.

Q. Well, if you don't remember, it is not of sufficient importance to justify you in hunting your memorandum. I understood you a while ago that it took you the greater part of the forenoon or perhaps all the forenoon to inspect it from the time you got there.

A. I could not say whether the forenoon or not.

Q. You could not?

A. No, sir.

Q. You could not say whether it was in the forenoon or in the afternoon?

A. No, sir, all I have is on my official diary, and that is all I did on that day, inspect the Coca-Cola Company, and that would indicate I was there pretty nearly all day.

Q. You simply have no other memorandum on that

diary and that is the only thing you can base the statement on that you were there pretty nearly all day?

A. I remember the length of time it took me to go through there; I went through there very thoroughly from top to bottom.

Q. Now, do you say you saw a tank in which this sugar was melted for this compound?

A. Yes, sir.

Q. That is the plain, ordinary sugar that they dump in out of the barrel?

A. Yes, sir.

Q. That is into a big kettle surrounded by a platform?

A. No, sir, not surrounded.

Q. Not surrounded?

A. No, sir.

Q. How much of the compass of the platform surrounds it?

A. The kettle is circular and this platform is at the rear of the kettle.

Q. Back of the kettle?

A. Yes, sir.

Q. And that platform has a step or two leading to it, and they bring up the barreled sugar and knock the head out of it and dump it over in the kettle?

A. As I remember, there were several barrels on the platform.

Q. Several barrels on the platform there?

A. Yes, sir.

Q. Well, they dump the barrels in one at a time?

A. Yes, sir.

Q. And as the sugar would fall into the kettle, some of it would spread out on the platform?

A. Yes, sir.

Q. And gum up and crystallize on the platform?

A. I would not say it would crystallize on the platform.

Q. Well, it was dumped on the platform, at any rate, to some extent.

Q. You say they had a nigger man that did the cooking and in charge of the dumping operation?

A. Yes, sir.

Q. Well, they have a great many negro cooks in Atlanta, don't they?

Mr. Miller: I object to that.

The Court: That is immaterial.

BY MR. SIZER.

Q. Isn't it a fact, Mr. Lynch, that as a general rule in

Atlanta and throughout the South that the employes that are engaged in doing unskilled work are colored men?

Mr. Miller: I object.

Mr. Sizer: They seemed to dwell on the fact that we had a colored cook there. I want to show that we are not guilty of any undue negligence.

The Court: The exception is overruled.

The Witness: Some factories in Atlanta don't employ any negroes at all.

BY MR. SIZER.

Q. I didn't ask you that question — will you kindly answer the question as I put it to you, if it is not a fact that most employes engaged in unskilled labor throughout the South generally are colored men?

A. Why, yes.

Q. Now, you say the darky was sweating?

A. Why, yes.

Q. You were sweating, too, that day?

A. No, sir.

Q. You were not sweating?

A. No, I don't remember.

Q. You don't remember?

A. No, sir.

Q. It was a hot day in July, was it?

A. Yes, it was a hot day.

Q. That was a hot place, too, was it, right over that steaming kettle, was it not?

A. I don't know; I was not over the kettle; I could not see that it was any hotter there than anywhere else.

Q. You don't think it was any hotter over that steaming kettle or boiling sugar than anywhere else?

A. It was not boiling then.

Q. It was not hot then?

A. Not hot then.

Q. If I remember right you testified that they were getting ready to boil that sugar.

A. They were mixing the syrup.

Q. Didn't they turn on the steam and heat the kettle up before they mixed it?

A. I don't know.

Q. Don't you have to have it hot before the sugar is melted?

A. Yes, sir; certainly.

Q. And that sugar was melted, was it?

A. You say, it was melted, was it?

Q. Didn't you look at the sugar after it was dumped in there?

A. Yes, sir.
Q. Was it melted?
A. I could not say.
Q. Didn't you say a while ago it was melted?
A. I could not say.
Q. You don't know whether it was melted or not in the kettle?
A. The melting is done in the kettle.
I asked you whether the particular sugar that was in that kettle at that time you made this inspection was melted?
A. I could not say.
Q. You didn't examine it close enough to see whether the sugar was melted?
A. No, sir.
Q. Well, what was it you were there looking at that kettle for, to see how they put the sugar in it?
A. To make a sanitary inspection of the factory.
Q. You didn't have any interest particularly in the kettle?
A. Only as to its sanitary condition.
Q. Now, they had a jacket around that kettle by which they introduced the steam and that steam gave the heat that melted the sugar?
A. Yes, sir.
Q. That was the situation there?
A. Yes, sir.
Q. Was there any steam in the jacket at the time you were there?
A. I could not say.
Q. At any rate, the darky was perspiring very freely?
A. Yes, sir.
Q. You say he was chewing tobacco?
A. Yes, sir.
Q. How do you know he was?
A. Well, in making those inspections we paid particular attention to the expectoration and regulations of that kind, whether there is any rules posted up as to spitting, whethed the employes spit around; and that is a part of our business.
Q. Did you see him take any chew of tobacco while you were there?
A. I can't say that I did.
Q. Did you go and examine any of his expectoration or analyze it to see whether he was chewing tobacco or gum?
A. It was not necessary.
Q. Did you do it?
A. I saw him spitting around there.

Q. Do you know it by the color?
A. Yes, sir.
Q. Might it have been that he was chewing licorice?
A. I never knew a nigger to chew licorice.
Q. How could you tell whether he was chewing tobacco or licorice?
A. By the way it landed on the floor and the general appearance of it.
Q. How was it that it landed on the floor, and what was the general appearance of it?
The Court: I think that is sufficient.

BY MR. SIZER.

Q. You didn't analyze these expectorations to see whether he was chewing tobacco or not?
A. I am not an analyist.
Q. You say he was chewing something?
A. He was chewing tobacco.
Q. That is, you thought from the sound it made on the floor and the looks of it?
A. From the appearance of it.
Q. From the appearance of it?
A. Yes, sir.
Q. And you didn't see him take any chew of tobacco while you were in there?
A. No, sir.
Q. You didn't see him spit in the kettle?
A. No, sir, he didn't spit in the kettle.
Q. Now, in that first vat was sugar and into that they introduced some caramel?
A. Yes, sir.
Q. That caramel is just brown sugar, is it?
A. I don't know what it is.
Q. You don't know what caramel is?
A. I understand burnt sugar, caramel sugar.
Q. That is what they put into this caramel coloring?
A. Yes, sir.
Q. And caramel coloring is burnt sugar?
A. Not to my knowledge; I don't know.
The Court: That is supposed to be correct, is it?
Mr. Miller: I expect that is true.

BY MR. SIZER.

Q. And next they put in some caffeine?
A. I didn't see them put in the caffeine.
Mr. Miller: Well, we will agree they did.

BY MR. SIZER.

Q. Didn't you testify on your examination in chief that

they dumped a box of caffeine into it?

A. I don't remember testifying that I saw them dump it into it.

Q. Didn't you say they put it into it?

A. No, sir, I didn't make that statement.

Q. Then what you mean to say is you don't know whether they put caffeine in it or not, is that right?

A. I saw the nigger come in and get the caffeine.

Q. And take it out?

A. Yes, sir, I was in the laboratory at the time.

Q. What did you say now about the quantity of caffeine? I want to get an understanding of just what you did testify about the quantity of caffeine that was put in that kettle of syrup.

A. I didn't testify the caffeine was put into that kettle of syrup. I testified as to the P's on that scale.

Q. What has the P's on the scale got to do with it?

A. That is the balances.

Q. You don't know how much caffeine was in the box or how much was put in the mixture?

A. Not at that time. I know the lower P was 30½ pounds and the upper P three-quarters of a pound, and the nigger weighed it and let the P go up.

Q. You know what that weighed?

A. No, sir, I didn't know then; I didn't tare the box at that time. I should judge ——

Q. (Interrupting) I didn't ask you what you should judge, but do you know what that weight indicated?

A. That weight indicated the gross amount, indicated the weight of the caffeine in the box.

Q. How much was that, now?

A. Thirty and a half pounds on the lower P and three-quarters on the upper P.

Q. And that included the box and the caffeine?

A. Thirty-one and a quarter pounds.

Q. How much sugar was in the vat?

A. I can't tell.

And that caffeine was put in, was it, into the vat?

A. I am told into twelve hundred gallons.

Q. Do you know, or is that just simply your information.

A. That is my information.

(Thereupon the Court, at 12:30 o'clock P. M., took a recess until 1:30 o'clock P. M.)

AFTERNOON SESSION.

The Court, at 1:30 o'clock P. M., met pursuant to adjournment.

PLAINTIFF'S EVIDENCE CONTINUED.

L. Y. LYNCH resumed the stand for further cross-examination, testifying as follows:

CROSS-EXAMINATION — Continued.

BY MR. SIZER.

Q. Mr. Lynch, as I understood your testimony this morning, this sugar, syrup, caramel and the caffeine were all mixed together in this kettle on one floor, is that correct?

A. That is the way I understood it from Mr. Candler.

Q. At any rate, you saw the boxes of caffeine carried out to be dumped in there on the floor?

A. I saw the box of caffeine carried out, but I did not see where it was dumped.

Q. And from the fact that it was carried out of the laboratory in the direction of the kettle you inferred it was emptied into the kettle on that floor?

A. I asked Mr. Candler.

Q. But I didn't ask you that; you don't know personally where it went?

A. No, sir.

Q. Well, you did testify to the fact that certain of the ingredients were subsequently put in, didn't you?

A. Yes, sir.

Q. The fact is now that after the caffeine is put into the syrup the next ingredient put in is the coloring, is it?

A. I don't know about that; I didn't see that.

Q. Well, you won't say whether or not other ingredients were put into it or not?

A. Sir?

Q. Do you say that you do know what ingredients were put in it at all?

A. Only from what Mr. Candler told me.

Q. You have no personal knowledge of it, then?

A. No, sir, other than what I was told.

Q. Well, when you were testifying before noon that certain flavoring extracts and some phosphoric acid and things of that kind were put into the compound, you were simply stating what Mr. Candler, Mr. Howard Candler, told you?

A. Yes, sir.

Q. You don't know as a matter of fact what ingredients went into this compound?

A. No, sir.

Mr. Sizer: We move to exclude all that he has testified with reference to the ingredients that went into the compound.

The Witness: Except the sugar and the caramel coloring.

Mr. Sizer: I accept that—

The Court: This statement made to you, was it a statement as to what was being done with the ingredients there at the time in the actual process, or merely a general statement as to their process of manufacture, or did he tell you as to the use of any particular phosphoric acid or only make a general statement as to the method of manufacture?

The Witness: He pointed out the different containers and said they were using them in the manufacture of Coca-Cola.

The Court: Just made a general statement about it?

The Witness: Yes, sir.

The Court: Then I sustain the exceptions. As I understand it, the rule announced in 20th Wallace, 528 by the Supreme Court, and other authorities, is this, that as a general rule declarations of the agent made while acting within the scope of his authority and during the continuance of his agency may be given in the evidence in regard to transactions pending at the time as part of the res gestae, but other declarations that do not constitute a part of the res gestae but being mere narrative statements, are excluded as hearsay.

Mr. Miller: The statement here was made two days after the transaction occurred and was simply showing how it occurred two days previous and the point we have here is Mr. Lynch went to the factory and told the manager what his business was there, he was there to determine how this was made and that the manager in turn took him through and undertook to show him how it was, and that being a part of Mr. Lynch's official duty, occurring at the time, and the negro came in to get the caffeine at the time, that could not be likened to the Huff case where two days afterwards a man merely stated to a third party how a thing was, but this occurred at that time. I understand—

The Court: (Interrupting.) This witness only states what Mr. Candler told him, after the general method of doing business, and he did not make any statement as to what they were doing with any particular ingredients or articles at that particular time.

General Cox: That decision, your Honor refers to, was made on general principles and we have a statute passed here in 1906 that probably will aid your Honor, and the decision which your Honor refers to—because this Act says, when we construe it, the provisions of this Act—"The acts, omissions or failures of any officer, agent or

other person acting for or employed by any corporation, company, society or association within the scope of his employment or office shall in every case be also deemed to be the act, omission or failure of such corporation, company, society or association, as well as that of the person."

I say that probably your Honor's decision, the one to which you refer, was based upon the general law, but here is an act—

The Court: (Interrupting.) I don't think that provision of the Food and Drugs Act is intended to change the rule of evidence but merely affects the liability of a company for the act of an agent. You may proceed.

BY MR. SIZER.

Mr. Lynch, you say you found a cess pool, I believe you term it, in the floor or basement, it that correct?

The Court: I do not see that these matters are very material, because if there was caffeine there it is a subject of chemical analysis, and to prove what they were doing there does not seem to be so material, except as it may bear on the charge in reference to the coloring to conceal the impurities, but otherwise I do not see that it has much weight.

Mr. Miller: I just suggest this thought to your Honor —if it was being manufactured, twenty-four pounds to-day and twenty-eight pounds to-morrow, I mean, if that much caffeine was put in at different times, it would have quite a bit to do with this particular mixture when you come to try it on one phase of the defense, which is as I understand in the nature of a confession and avoidance. They claim they have had a formula and made it and sold it according to this formula for a number of years. And, when we show varying quantities and I believe I can show by this witness and others—

The Court: (Interrupting.) I have allowed you to prove that, I did not exclude that, as to what he saw weighed.

Gen. Cox: Your Honor only excludes what Mr. Candler said?

The Court: Yes, the general methods of operation that Mr. Candler told him about.

BY MR. SIZER.

Q. I asked you about that cess pool, what do you mean by that?

A. It was not a cess pool, but it was a drain.

Q. I thought you called it a cess pool—why did you call it a cess-pool?

A. I didn't intend to do that, it was not a cess pool.

Q. It was not a cess pool?
A. No, sir.
Q. Not in any sense?
A. No, sir, it was not a cess pool.
Q. It was simply a trap connected with the city sewer so they could wash the floor up and the water would run into the sewer?
A. I don't understand the word "trap." It was a hole, covered by an iron grate; it had holes in it and emptied into the sewer.
Q. And when you said it was a cess pool you didn't mean that?
A. I didn't mean the same as street cess pools are.
Q. You say the streets around there are not paved, Mr. Lynch?
A. I said the Coca-Cola place was macadamized.
Q. Isn't it a fact that the street on both sides of that building is paved?
A. Not as I remember, not as I remember Coca-Cola Place.
Q. Do you say it was not, do you undertake to so testify?
A. It was not paved on both sides of the building.
Q. Yes, I understand you to have said, as I remember it, that it was macadamized on Coca-Cola Place.
A. Yes, on Coca-Cola Place and on Edgwood Avenue—
Q. (Interrupting.) What kind of paving on the other side?
A. I don't remember at that time whether they were little blocks or whether it was stone pavement, it was a paved street.
Q. Well, it was paved on both sides?
A. No, sir, on Edgwood avenue it was paved, and on Coca-Cola Place it is macadamized.
Q. What do you mean by macadamized, do you mean covered with these cobblestones, don't you?
A. No, sir.
Q. Isn't it a fact that Coca-Cola Place was covered with cobblestones?
A. Not to my knowledge.
Q. Not to your knowledge?
A. No, sir.
Q. It is your recollection, sufficiently definite for you to testify that Coca-Cola Place was not paved with cobblestones?
A. Yes, sir.
Q. You deny it absolutely?
A. That it was paved with cobblestones?

Q. Yes?

A. If it was, the dirt was on it so much, on top of it, you could not see the cobblestones.

Q. You could not see the stones if they were there, is that what you mean to say?

A. Yes, sir.

Q. You are certain of that?

A. Yes, sir.

Q. You are absolutely certain of that?

A. Yes, sir.

Q. Assured of that positively?

A. Yes, sir, I am.

Q. Now, were you back there at this place at any time, Mr. Lynch, between the visit you made in July and the one and Dr. Kebler made the following October?

A. Yes, sir.

Q. How many times?

A. I can't recall that; I used to drop in there when I went down that way.

Q. You didn't make any inspection of the plant between those two dates?

A. No, I made—not that I made any report on.

Q. You made no inspection of the plant at all, I said.

A. Well, I went downstairs and was up in the first floor.

Q. Well, I didn't ask you that—what was the date of that trip?

A. I could not give you the exact date of that.

Q. Have you got any memorandum in your book?

A. No, sir.

Q. You are unable to state the date of any visits you made between the one in July at which you made this inspection and as testified about and the visit that you and Dr. Kebler made there on October 20?

A. Not the exact dates. I would drop in down there.

Q. To pay a visit to Mr. Candler?

A. No, sir, I didn't see Mr. Candler. I think I was in there once in that time and saw Mr. Candler.

Q. Who did you go to see?

A. Not anybody. I just walked in there.

Q. What were you doing down there?

A. Looking around.

Q. Did you have any instructions to go there and make any further inspection?

A. Not more than general instructions, just visiting food factories in our territory.

Q. You only recollect seeing Mr. Candler one time on these visits?

A. Only one time between when—I saw Mr. Candler twice, I remember of; I may have seen him more.

Q. You remember how many times that you made these casual visits between the one in July and the one in October?

A. No, sir.

Q. You don't undertake to say how much examination you made or anything of that kind?

A. No.

Q. Now, then, when you and Dr. Kebler went there in October, what was the purpose of that visit?

A. To make another inspection.

Q. You went to Mr. Howard Candler, did you, and told him you were coming to make an inspection?

A. Yes; we met him that day.

Q. Did you when you went to the factory to make the inspection, did you call him out and tell him you came for that purpose?

A. Well, as I remember it one of the employes told Mr. Candler.

Q. You and Dr. Kebler got there at the noon hour when Mr. Candler was away?

A. No, sir.

Q. You did not?

A. No, sir, not my recollection; the fact of it is I know we did not. We went down immediately after breakfast.

Q. Was Mr. Candler there?

A. He was there, I don't know whether he was there—I don't know where he was when we got there. He was there he met us there.

Q. Did you see him the first thing when you got there?

A. No. sir

Q. What did you do the first thing?

A. We went around the factory.

Q. Why didn't you go and see Mr. Candler, the head of the factory, and tell him you were there and what you were there for?

A. Sometimes we don't do that.

Q. Did you have any reason for not wanting Mr. Candler to know you were in there?

A. I had no particular reason.

Q. Why didn't you go to the head of this establishment and tell him as to what you had done on the other occasion and had come back in your official capacity to make an investigation of his plant?

A. Well—

Q. (Interrupting.) I mean as you did on the other occasion, go to him?

A. Well, on the other occasion I was stopped at the door and had to tell my business at the front door, to a young man who was in charge there, and the other time he let me in.

Q. How was that?

A. The first time there was a sign "No Admittance" on the door and I went in there and a young man was in charge, I guess he was there in the capacity of a shipping clerk or something, and he wanted to know my business and he referred me to the office, and on the first occasion I saw Mr. Candler.

Q. Well, you told him what your business was?

A. Yes, sir.

Q. And he after you did that showed you over the plant?

A. Yes, sir.

Q. Why was it on the second visit that you did not take that same course?

A. Didn't want to.

Q. Why not?

A. I didn't want to.

Q. Did you have any reason to sneak around and make an inspection of that plant when the manager was not there?

Mr. Miller: I object to that question; it is not a proper question.

The Court: Yes, I think the question is objectionable.

BY MR. SIZER.

Q. Did you have any reason for wanting to go into that plant when the manager was not there, and inspect it?

A. No, sir, I had no reason.

Q. You had no reason and Dr. Kebler had none?

A. I can't say about Dr. Kebler, I know I had none.

Q. Isn't it a fact that the first that Mr. Candler knew of you and Dr. Kebler being there, you were up in the rafters, next to the ceiling of the plant on the first floor?

A. I didn't catch that.

Q. Well, I say isn't it a fact that the first that Mr. Howard Candler knew of you being there was when you were up next to the rafters of the ceiling of the plant of the first floor?

A. I don't remember. I don't know just where Mr. Candler came from, he came down to the office and met us.

Q. You remember about crawling up among the rafters?
A. Me?
Q. Yes, you.
A. No.
Q. Do you mean to say were not up there?
A. I don't see how I could get up there.
Q. Now, Mr. Lynch, were you not up in these rafters?
A. No, sir.
Q. You were not?
A. No, sir.
Q. You never got up among them?
A. Well, there is a stairs going up from the basement, yes, I could see the rafters there.
Q. You were up there next to the ceiling, up among the rafters when Mr. Candler came in?
A. I was on these stairs—yes,—I don't know whether Mr. Candler met me there or not.
Q. Well, at some period of your visit you did get up in the ceiling, next to the ceiling, among the rafters?
A. Yes, sir.
Q. And Dr. Kebler was there with you?
A. I didn't get up among the rafters in that sense, I was on the stairs.
Q. How far were you from that ceiling?
Mr. Miller: Which ceiling?
Mr. Sizer: He understands me.
The Witness: You mean where? Do I understand you mean the ceiling of the basement?
Q. Yes, on the first floor, how far were you from those rafters.
A. I could not say that.
Q. Well, you were a very short distance?
A. Yes, sir.
A. And the fact is if you had stood up there your head would have bumped against the rafters.
A. No, sir, not my head.
Q. How about Dr. Kebler's?
A. I don't know about that, I know I can walk up there.
Q. Well, what were you doing up there?
A. Looking in these tanks.
Q. Oh, you got up there to look down into the tanks?
A. I don't know whether we were going upstairs or downstairs.
Q. Could you see in the tanks, into the tanks there, without getting into that position?
A. From the floor of the basement?

Q. Yes.
A. See into the tanks?
Q. Yes.
A. No, sir.
Q. How did you get up there to look into the tanks?
A. I just went up on the stairs.
Q. Then you did get up there to look into the tanks?
A. Yes, sir.
Q. Now, who met you at the door when you went there on this business?
A. Who met me at the door?
Q. Yes.
A. Which door do you refer to, please?
Q. Any door, how did you get into the plant?
A. Walked in.
Q. Well, who met you at the door when you went in?
A. I don't recall that.
Q. Well, the fact is nobody was there?
A. Yes, sir, the employes were around there.
Q. Did you speak to any of them?
A. I did that young man there, I said: "Good morning" or something like that.
Q. Did you tell him you were going to make an examination.
A. No, sir. It was not necessary for me to do that; he knew who I was.
Q. Did you ask anybody's permission?
A. No, sir.
Q. You walked right in and proceeded to make such an examination as you wanted to?
A. Yes, sir.
Q. And you say you don't remember when it was you first saw Mr. Howard Candler on that occasion?
A. Is that on October 19th you refer to?
Q. On October the 20th, you said it was.
A. I don't remember when it was when I met him.
Q. Well, you had progressed a considerable ways with your investigation before Mr. Candler came along at that time?
A. I had been in there some time.
Q. Which one of these floors was it, Mr. Lynch, that you went up to look down at the tanks? Was it on the ceiling of that floor there or the basement ceiling?
A. The basement ceiling.
Q. The basement ceiling?
A. Yes, sir.
Q. Were you there up in the rafters on that other floor —were you ever up in the rafters on that other floor?

A. Up here. (Indicating on photograph.)
Q. Yes.
A. On the first floor as you go in?
Q. Yes. On the floor I pointed to you there. (Indicating on photograph.)
A. Why, no.
Q. "Why, no"?
A. Yes, sir.
Q. You never were up in the rafters on that floor?
A. No; I don't think the rafters show on that floor.
Q. You know or do you remember whether you were ever up there?
A. I know I was not.
Q. Can you say that Dr. Kebler was not?
A. I don't know.
Q. Was he with you and you were with him all the time making that examination?
A. Yes, we were together.
Q. Can't you tell whether Dr. Kebler was up there or not.
A. I didn't see him go up there.
Q. You didn't see him up there?
A. No, sir.
Q. You are sure you didn't see him up there?
A. No, sir; there is no way of getting up there.
Q. You are positive you didn't go up there?
A. Yes, sir.
Q. Did Dr. Kebler on this occasion get down on top of that tank in the basement?
A. Get out on top of that tank?
Q. Yes, sir.
A. Which tank do you refer to?
Q. The tank in the basement, the mixing tank.
A. The mixing tank?
Q. Yes.
A. Oh, I didn't know—I didn't understand you. I thought you were referring to the cooling tank.
Q. I am referring to the mixing tank.
A. No, sir, not to my knowledge.
Q. You didn't see him do that?
A. No, sir.
Q. Now, I want to ask you another question about this old colored cook you talk about here, that you talked about before noon. I understood you to say and you are positive on the proposition that that darky was chewing tobacco when you were making that examination?
A. Yes, sir.
Q. Now, suppose that darky and that Mr. Howard

Candler would both testify that the man never chewed tobacco in his life, are you sufficiently positive about it to be able to say they are both mistaken about that?

Mr. Miller: I object to that; I do not think that is proper. It is argument.

The Court: The objection is sustained.

Mr. Sizer: I want to know how positive he was as to that.

The Court: Well, you can ask him that.

BY MR. SIZER.

Q. You are willing to assert positively that he was chewing tobacco that day?

A. Yes, sir.

Q. And you are just as positive about that as about anything else you have testified to?

Mr. Miller: Now, I object to that, that is objectionable, as to whether he is as positive about that as to anything else he said he was positive.

The Court: I overrule the objection.

Mr. Miller: We desire to reserve an exception to the ruling.

A. Yes.

BY MR. SIZER.

Q. You are?

A. Yes, sir.

Q. You are sure?

A. Yes, sir.

Q. You could not be mistaken about it?

A. I don't see how I could be mistaken about it.

Q. I will ask you now about taking the samples out of the barrels and kegs up in Chattanooga. I believe you say you took one sample from one barrel and one sample from a keg down at the Coca-Cola Bottling Works plant.

A. Not from a keg at the Coca-Cola Bottling plant, there were no kegs there.

Q. Just from a barrel, then, there?

A. Yes, sir.

Q. You took one sample at the plant of the Coca-Cola Bottling Works?

A. Yes, sir.

Q. How do you say you got that sample, from the barrel?

A. In a jug.

Q. You poured it through a pipe?

A. Yes, poured it through a pipe which they had there and which they used, and they have an arrangement for hoisting the barrel up from the floor or off of the floor,

and they used this pipe, a sort of water pipe or metal pipe, and they fitted it into the barrel, it has a faucet on it, and they allowed me to use that; that set the barrel up for me on to this sling so as that stuff was run into my keg, or jug.

Q. Was that a metal pipe or a rubber pipe?

A. It was a metal pipe with a fauset to it.

Q. A metal pipe with a fauset to it?

A. Yes, sir.

Q. And you just set the jug under it and turned the fauset and let the liquid run down?

A. Yes, sir, set the jug under it.

Q. You set the jug on the ground?

A. I don't know whether I set it on the ground, I held it up under the fauset or set it down, I don't know which one I did.

Q. You don't know which one?

A. No, sir, I held it up, I believe; I know that the fauset went into my jug.

Q. What kind of a cork was put in the jug?

A. An ordinary new cork.

Q. Where did you get the cork?

A. It came with the jug.

Q. Did you sterilize it?

A. Yes, sir.

Q. How?

A. By steaming it.

Q. Now, the proper way of sterilizing a cork and the only sufficient way is to burn it in a Bunsen burner?

A. Well, I can't qualify as an expert on that.

Q. Well, the fact is all you did with the cork in order to sterilize it was to put it in steam?

A. Boiling water.

Q. Boiling water?

A. Yes, sir.

Q. Well, you put it in boiling water and took it out in your hands and put it in the jug?

A. Yes, sir.

Q. You put it in the jug with your hands?

A. Yes, sir.

Q. Now, when you went down to Trigg, Dobbs & Co., how did you fill the jug down there?

A. The same way.

Q. Did you take this pipe from the bottling works plant down there?

A. Yes, sir.

Q. Carried it in your hands?

A. Yes, sir.

Q. And sterilized it after you got it down there?
A. No, sir, before I left the Coca-Cola Company.
Q. You sterilized it before you left the Coca-Cola Company's plant and carried it down in your hands?
A. Yes, sir, with both ends plugged.
Q. What did you have it plugged with?
A. With cotton.
Q. Where did you get the cotton?
A. I bought it in one of the drug stores here.
Q. And you took it in your hands, did you?
A. Yes, sir.
Q. You took it and stuck it in with your fingers and carried the pipe down from the Coca-Cola Company to Trigg, Dobbs & Co.?
A. Yes, sir.
Q. That is several blocks?
A. Yes, sir.
Q. About how many million bacterie could that pipe dition?
A. I am not qualified to answer.
Mr. Miller: He has not qualified—not as many as you would have accumulated in these settling tanks at the Coca-Cola factory, I am sure.

BY MR. SIZER.

Q. Did you put the cotton in the end of the pipe before you sterilized it or afterwards?
A. Afterwards.
Q. After you sterilized it?
A. Yes, sir.
Q. You sterilized it first and put the cotton in the ends?
A. Yes, sir; immediately afterwards.
Q. Did you not take these samples and divide them up into three parts and leave one at the place where you got the samples?
A. It is not necessary, it is not required.
Q. Now, I did not ask you that.
A. No, sir.
Q. I ask you whether you did it or not.
A. No, sir.
Q. You didn't leave a sample there at the Triggs, Dodds Company or at the Coca-Cola Bottling Works.
A. No, sir, I did not.
Q. I want to ask you about the process of stirring the syrup in the kettle. You say that was done with a shovel?
A. I said I could not state that.

Q. Now, didn't you state in your examination in chief that it was stirred with a shovel?

A. I said I thought that, I didn't remember that point.

Q. Or a paddle?

A. I used the term "paddle" but I said I didn't remember positively how it was done.

Q. You don't know whether it was a paddle or a shovel?

A. No, sir.

Q. Mr. Lynch, to refresh your recollection, it is a fact that the instrument with blades on it that revolves in that kettle, something like the blades of an ice cream freezer, the blades on an ice cream dasher—

A. In the simple syrup kettle?

Q. Yes, sir.

A. I said I could not testify as to that.

Q. You do not know?

A. No, sir, I do not recall.

Q. What do you mean by "simple syrup kettle?"

A. The sugar syrup kettle.

Q. That is the big vat, the first one?

A. Yes, sir.

Mr. Sizer: Well, that is all.

RE-EXAMINATION, BY MR. MILLER.

Q. Mr. Lynch, what is the color of the Coca-Cola of the Coca-Cola syrup after the ingredients are all mixed?

A. You mean the finished product?

Q. Yes. That you got and sent in to Washington.

A. It is the color of caramel or sugar coloring, or brownish red.

State whether or not that syrup as it appeared, whether you could see and detect in that as clearly foreign substances as you could before the coloring matter was added.

Mr. Sizer: We object to that. There is no proof that there was any foreign substance in there.

Mr. Miller: I hope to prove that finally; can't prove it until we get the analycists on.

Mr. Silzer: That is not a question of fact. That is a mere matter of opinions, that any man might testify to as well as this witness.

Mr. Miller: I submit that the question is competent.

Mr. Sizer: He is not an expert and not qualified as an expert.

The Court: I will overrule the exception.

Mr. Hirsch: We will note an exception to the ruling.

BY MR. MILLER.

Q. State, Mr. Lynch, whether or not after this color-

ing matter is added, the caramel or whatever it may be, one could as easily see and detect foreign substances in this mixture, such as grass or straw or any foreign substance, as he could before the coloring matter is added.

A. No, sir.

Q. Now, I neglected to ask this question in chief and I will ask it now, and if it is objected to I will ask leave to ask it. What kind of barrels were used for shipping Coca-Cola?

A. Barrels which had formerly been used for whisky.

Q. Where were these barrels, whisky barrels, stored?

A. Some of them were stored in the cooperage room and some stored out in the back yard of the factory.

Q. Before these whisky barrels were used for the Coca-Cola syrup, to be put in them and shipped out, were they not sterilized in any way?

A. There was an attempt made—they were not sterilized, there was steam put in them, just put over a steam jet for a few minutes and cold water run through them, and they put them to one side and painted them red.

Q. State whether or not any street cars pass nearby this Coca-Cola factory or building in Atlanta.

A. They pass down Edgewood avenue.

Q. Were there or not any open windows from Edgewood avenue into the factory?

A. Yes, sir, several open windows into the basement of the factory.

Q. Was that or not on the side where these cooling tanks were?

A. Yes, sir, the cooling tanks, some of them were against these windows.

Q. State what, if any, conversation you had with the president of the Coca-Cola Company at the time of your visit there, either of your visits to the factory, from July, 1909, or October 20, 1909, and prior to this seizure?

Mr. Sizer: We object to that.

The Court: The objection is sustained.

BY MR. MILLER.

Q. Did you or not have any conversation with Mr. Asa G. Candler, the president of this company, and who has verified the answer in this case as to your visits to this factory just immediately prior to this seizure and especially prior to that time, and in which he strenuously objected to your inspecting the factory?

Mr. Sizer: We object to that, your Honor. We are objecting to the form of the question.

BY MR. MILLER.

Q. And in which he registered any protest against your being in there.

Mr. Sizer: We object to that, it is not any more competent to ask him the question in that way than in the manner in which he asked it a while ago.

The Court: I think the court is objectionable in the form put, but the question may be—whether he had a conversation with the president and he objected to his visiting the plant.

BY MR. MILLER.

Q. I will ask you then as I tried to do at the outset, whether you had a conversation with the president of the Coca-Cola Company prior to this seizure, and especially prior to the occasion of one of your visits to the factory and at a time when you had made any purchase at the factory of any of the product used in the making of Coca-Cola, and tell what that conversation was.

Mr. Sizer: We object to that.

The Court: I don't admit or hold the question competent in the broad form it is put, or any statement the president made, but I only allow the statement of the president with reference to the fact that the witness had been there before and his expressions in reference to that subject are admitted; otherwise not. If the president of the company made any statement to you in reference to your prior visits or to the fact of your visit, you may testify as to that.

The Witness: He did not refer to my former visit but to the one that I was on then.

Mr. Miller: This was prior to the seizure—I wish the Court to thoroughly understand our position—we do not even want anything here that is not competent even though it might inadvertently creep in. Our position is that the president of the company, knowing this man's official connection and knowing of the reason that took him to the factory, forbade him or practically forbade him the factory.

The Court: Anything as to his objections as to going into the factory you may prove.

Mr. Sizer: I want to call attention to the fact that Dr. Candler did not object to the witness' visit he had made when Howard Candler was along with him, but President Candler objected to his going in there without his being with him.

The Court: He may bring out the facts—

Mr. Miller: I am asking him in respect to a visit that adverse counsel asked him about when Dr. Candler and he

were there, and whether or not he had any conversation with Dr. Candler, with the president of the company, as to that visit, and if he did, to tell what it was.

Mr. Sizer: That was after the seizure; after the shipment was made on the 20th of October.

The Court: The exception is overruled and he may proceed.

Mr. Hirsch: We note an exception.

The Witness: Do you mean to say that Mr. Candler referred to Dr. Kebler's and my visit.

BY MR. MILLER.

Q. Yes, Dr. Kebler's and your visits, or any purchases you made while there, or in reference to your official conduct while there?

A. I went down there to purchase some Merchandise No. 5.

Q. Is that or not a product that is used in the making of Coca-Cola?

A. Yes, sir, it is.

Q. Tell what occurred.

A. I had met Mr. Howard Candler that morning and obtained from Mr. Howard Candler—or he gave me, a sample out of a barrel of this mixture. I was up in his office and went up in the office and selected that sample there. I offered him payment for that sample, what is known as a form voucher that the inspector fills out and the members of the concern signs it and he mails it to the Department, and the disbursing officer pays for it; and Mr. Howard Candler filled out the form and came back with his father and said the gentleman was his father.

Q. Was that or not Mr. Asa G. Candler, president of the company?

A. Yes, sir, and his father was very excited, he said he was not going to let me have the sample, he said: "By God, if I had been here you would not have got it; we have got nothing here to sell the Government and I won't take your voucher." He was very angry and very excited and in the conversation referred to Dr. Kebler as "A God-damned carpenter," if I remember the conversation. He was very excited and very much worked up and very nervous.

Q. How, when you speak of Dr. Kebler being next to the rafters, when you spoke of that a while ago, did you mean the rafters that were on top of the building or these stringers that went across above the cooling tanks?

A. Well, the only time I saw Dr. Kebler near the raft-

ers was when he was going up and down the stairs with me.

Q. Going up and down which stairs?

A. The stairway from the first floor into the basement.

Q. How, at the time you had this conversation with Mr. Howard Candler, this first conversation, about the ingredients that went into the mixture, and at the time the cook came in to get the caffeine, I will get you to state whether or not you had asked Mr. Howard Candler how they were then making Coca-Cola.

A. Yes, sir.

Q. And state whether or not his answer was in response to your question.

A. It was.

Q. Well, now, then, if he told you whether or not they put any caramel, burnt caramel or caffeine in that mixture that they were then mixing, tell what in substance he said.

Mr. Sizer: I object to that.

The Court: The exception is overruled.

Mr. Hirsch: We note an exception to the ruling.

The Witness: He gave me the different Merchandise numbers; all of these products are known by different Merchandise numbers and I asked him for them and I made notes at the time just where the products were and they were put in. I had put down these Merchandise numbers and Mr. Howard Candler stated to me that he would rather that information would not go out of the factory, get out of the factory.

Mr. Sizer: (Interrupting.) We object to that.

The Court: I sustain the exception to that answer.

BY MR. MILLER.

Q. Did you or not surrender that memoranda to him after he requested it back?

A. I tore the page out of my diary and gave it to him, of the Merchandise numbers, what the different Merchandise numbers were.

Q. State whether or not these merchandise numbers compared to the numbers of ingredients used in making the mixture.

A. No, sir, not to my knowledge—you mean Merchandise No. 1 was the first put in?

Q. No, I mean they had a merchandise number for 1, 2 and 3; that is, for every ingredient they had or that they put in it?

A. Yes, sir.

Q. Now, in that conversation did he or not tell you how

much caffeine was put in these 1200 gallons of the mixture?

A. No, he would not make that statement.

Q. He didn't make that statement?

A. No, sir.

Q. Did he or not state to you there was caffeine put in that mixture?

A. Yes, sir.

Q. Did he tell you where they bought the caffeine?

A. As I remember the tins were marked.

Mr. Sizer: (Interrupting.) We object to that.

The Witness: He told me.

Mr. Sizer: We object to that.

The Conrt: What is the ground of the objection?

Mr. Sizer: He asked him if Mr. Candler told him where he bought it.

The Court: That exception is sustained. If the answer does not refer distinctly to what was going on at the time I don't think it is competent; otherwise, it is.

BY MR. MILLER.

Q. Did you or not state that Mr. Candler told you they were adding caffeine into this mixture as they made it, of Coca-Cola syrup?

A. Yes, sir. He said they put caffeine in it.

Q. And you saw the caffeine?

A. Yes, sir.

RE-CROSS-EXAMINATION.

BY MR. SIZER.

Q. Mr. Lynch, you say that this syrup was put in Whisky barrels?

A. Yes, sir.

Q. How do you know?

A. I saw the whisky barrels there and I have seen old whisky barrels, that have been used for whisky.

Q. Well, how do you know it?

A. Some of them had the labels on them, and some had the gauge marks on the bung hole and bung staves.

Q. How many did you recognize as barrels that had previously been used for whisky?

A. I didn't make any count of them.

Q. Now, on which visit did you see the barrels of that kind there in the yard?

A. July 19.

Q. Was that on the first visit you made there?

A. Well, the first I made after the inspection I saw them there.

Q. I say, that was the first visit you made or the first inspection you have testified about.

A. Yes, sir.

Q. You say they were sterilized by taking them and holding them over the steam before the Coca-Cola was put in them?

A. Yes, sir.

Q. Well, isn't that the proper way to sterilizing a barrel?

A. I don't think so; that depends a good deal on how hot that steam is you get in there.

Q. You don't know much about the proper sterilizing of things, anyway, do you, and did not you testify a while ago that you were not an expert on that sort of thing?

A. Did you ask me if I testified about the barrels that way?

Q. I say, didn't you testify that they sterilized the barrels by holding them over a steam jet?

A. I think I corrected the attorney, Mr. Miller—and stated that I didn't know about the sterilizing, that they just put it over a steam jet and let it rest there a few minutes, and took it off and put it in a cold water jet and turned it over and had it painted on one side.

Q. Then they did sterilize the barrels by holding them over the steam jet?

A. I won't say they did.

Q. You won't say they didn't?

A. I don't think they could sterilize them in the time they had them there.

Q. I ask you the question only if it is not a fact and you do not know about the proper method of sterilizing things and that you testified with reference to this on direct examination, that you did not know.

A. We as inspectors we have instructions about the sterilizing of vessels when we are out where the Department cannot send sterilized vessels, and these instructions—

Q. (Interrupting.) I didn't ask you anything about any instructions.

A. Well, I am trying to show you how I knew these things.

Q. Well, have you any other knowledge about the proper methods of sterilizing than such knowledge as you get from instructions?

A. Yes, sir, I have been connected with laboratories and seen sterilizing done and have been around laboratories and have had several years' experience in laboratories in Massachusetts where I saw sterilizing done and

helped to do it.

Q. Then why did you testify when I asked you about sterilizing a cork, as to whether the method you adopted was a proper method, why did you answer that you were not an expect on that proposition.

A. I don't think I am competent to say which is the proper way.

Q. You are no more competent to say which is the proper way to sterilizing a cork than to say which is the proper way of sterilizing a barrel?

A. I am competent to say that those barrels could not be sterelized in the time they were left over that steam jet.

Q. How long does it take to sterlize a barrel?

A. I don't think it could be done in less than a half hour, or an hour or an hour and a half.

Q. Do you mean to say, Mr. Lynch, it would take a half hour or an hour or an hour and a half to sterilize a barrel over a steam jet?

A. Yes; those are our instructions.

Q. I don't ask you anything about your instructions. I ask you if you mean to assert that as an absolute fact.

A. No, sir; I say it cannot be done in two minutes.

Q. How do you know that—how long does it take to kill a microbe?

A. I am not qualified to answer that.

Q. If you don't know how long it takes to kill a microbe, how could you testify—how are you able to testify that it could not be done in two minutes?

A. Well, common sense tells you that.

Q. Common sense tells you you can't kill a microbe in two minutes?

A. Yes, sir, over a jet of steam.

Q. It depends on the size of the microbe, doesn't it?

A. I don't know about that; I am not a bacteriologist.

Q. You don't know much about microbes?

A. No. sir, I don't know anything about them.

Q. Now, referring again to these barrels out in the yard, you say the brands on them indicated that they had been used for whisky—do you know as a matter of fact whether or not these barrels were ever used to put Coca-Cola in them?

A. Why, yes; I saw some second-hand barrels being prepared for cooperage.

Q. But these barrels were in the yard which you saw that bore indications that they were second-hand whisky barrels, and I ask you now did you ever see one of these barrels filled with Coca-Cola syrup?

A. No, I never saw the Coca-Cola syrup put in it. I

never saw it filled with Coca-Cola syrup.

Q. And you were inferring that they were going to use them for that purpose because you saw them in the yard out there?

A. Well, if I am not mistaken, I referred to that matter and the genetleman—

Q. I am not asking you what any gentleman said to you, but as to your knowledge of it.

Mr. Miller: Well, your Honor, I insist that he must either withdraw the question or allow the witness to answer it.

The Court: The witness answers of his own knowledge and counsel has the right to require answer in response to the question from the knowledge of the witness. If the witness wants to volunteer anything else, then he can do so.

Mr. Miller: The question before that was not limited to his knowledge; he asked him if he inferred from certain things that they were being used—

The Court: I would like to have the question read.

(Thereupon the question was read as follows: Q. "You were inferring that they were going to use them for that purpose because you saw them in the yard out there?")

The Court: The question is broader than I thought; I think the answer would be all right.

Mr. Sizer: He can answer whether he did infer from that—I don't ask him how he got it, I ask him whether he inferred they were usd for Coca-Cola from the mere fact that they were out there in the yard.

The Court: He may answer and explain why he inferred.

The Witness: I saw these empty barrels stored in the yard, and I saw some of them down in the basement in the cooperage room being coopered up, and I saw some of them painted, and they were barreling Coca-Cola there, and a painting them similar to the way they were all painted, the way all Coca-Cola barrels are painted, and I could not see what else they were using them for.

BY MR. SIZER.

Q. Did you know as a matter of fact that these barlers were discarded and defective and that they were not going to be used?

A. They were not.

Q. You know they were not?

A. Yes, sir.

Q. Why do you assume that they were not thrown out there?

A. That they were not defective barrels?

Q. Yes.

A. In the first place there were too many of them to be defective whisky barrels.

Q. Just because there were too many of them you know they were not defective barrels, is that it?

A. Well, there was a good quantity of barrels out in that yard.

Q. But just to get back and answer the question that I asked you, how do you know that these barrels out there in the yard were not defective and discarded barrels?

A. Discarded and defective from where, please, sir.

Q. Discarded from any place—if they were not discarded and defective barrels how do you know they were not, if you say they were not?

A. Well, they did not have the appearance of being discarded barrels.

Q. Well, to get back to the question I asked you a while ago, you said you did not see any of these barrels filled with Coca-Sola syrup, that you did not see one of these barrels that you call whisky barrels filled with Coca-Cola syrup?

A. I saw these barrels being painted.

Q. Well, answer my question,—did you ever see one of these so-called whisky barrels being filled with Coca-Cola syrup?

A. No, sir, not actually being filled with it.

Q. Now, then, about the whisky barrels — the very fact that it is a whisky barrel, that it has had whisky in it, that very fact that it has had whisky in it sterilizes it?

A. I don't know; that depends, I would think, on how long that barrel has been open.

Q. Do you know what would be the temperature of the steam that they let into these barrels when you say that they held them over the steam jet?

A. Do you mean what is the temperature of the steam?

Q. Yes.

A. No, I do not.

Q. You did not take the temperature?

A. No, sir; it came direct from their boiler.

Q. Well, the sterilizing quality of the steam depends very much on its temperature?

A. I don't know anything about the temperature of steam, I am not qualified on that.

Q. You don't know anything about it and don't know how high the temperature of steam would have to be in order to possess sterilizing properties?

A. No, I do not know.

Q. You do not know about that?

A. No, sir.

Q. I want to ask you about this conversation you had with Mr. Asa G. Candler. You say he got profane and swore when you talked with him?

A. Yes, sir.

Q. You are certain of that?

A. Yes, absolutely.

Q. Who was present at that time?

A. His son and myself.

Q. He and his son and yourself?

A. Yes, sir.

Q. That is, Mr. Howard Candler?

A. Yes, sir.

Q. And Mr. Asa G. Candler?

A. Yes, sir.

Q. And yourself?

A. Yes, sir.

Q. Now, anybody else?

A. No, sir.

Q. No one else?

A. No, sir.

Q. Now, what was the date of that occurrence? Was that after you and Dr. Kebler had gone down there and made this inspection on the 20th of October?

A. No, sir, I don't think so.

Q. Mr. Lynch, was it after that time you went down to buy the samples of Merchandise No. 5?

A. After the seizure was made?

Q. Yes.

A. You say, was it after that?

Q. Was it after the seizure was made, was what I asked you.

A. I can't give you the date on that.

Q. I didn't ask you for any date but I asked you if you didn't recollect distinctly that it was after the seizure was made that you went down to buy the sample of Merchandise No. 5 and had this talk with Mr. Candler?

A. Well—

Q. (Interrupting) To refresh your recollection, isn't it a fact that the occasion of Mr. Candler's displeasure was the fact that you and Dr. Kebler had gone around there in that informal sort of way and went in and under-

took to examine their premises there without seeing one of the managers?

A. No, sir, he never referred to our visit.

Q. He never referred to the fact that you and Dr. Kebler got in without letting them know you were there?

A. No, sir.

Q. What was it he was expressing displeasure about?

A. Coming there and getting a sample of No. 5 Merchandise and trying to offer to pay for it, the Government trying to get this stuff from him and pay for it.

Q. Then he didn't get mad when you came down there and inspected the plant when the manager was present but did complain when the manager was absent?

A. I deny we inspected the plant when the manager was absent.

Q. Well, you commenced it in his absence.

A. Yes, sir.

Q. Doctor Candler did not express any displeasure at that?

A. No, sir.

Q. But he did express a displeasure because you were trying to buy Merchandise No. 5 from his son?

A. He was objecting to my being in there, to my getting the sample or the Government owning the sample, and referred to the fact that he would not take the voucher.

Q. Then he was mad because the Government wanted the sample?

A. I don't know what he was mad at.

Q. He didn't tell you what he was mad about?

A. No.

Q. But your recollection is very definite that he in no way referred to the manner in which you and Doctor Kebler had made that examination on October the 20th?

A. I do not recall his referring at all to that.

(Witness excused.)

Thereupon,

H. C. FULLER,

the next witness produced upon behalf of the Government, of lawful age, first being sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER:

Q. Dr. Fuller, what is your profession?

A. I am a chemist.

Q. What institution or institutions, if any, are you a graduate of?

A. I am a graduate of the Worchester Polytechnic Institute, Worchester, Massachusetts.

Q. What number of years practical experience have you had as a chemist?

A. I have had about ten years' experience as a chemist since leaving that institution.

Q. How long were you connected with that institution?

A. Four years.

Q. Did you do experimental work while connected with that institution?

A. Yes, sir.

Q. How long have you been connected with the Bureau of Chemistry at Washington?

A. Four years.

Q. What did you do prior to that time and after leaving the Polytechnic Institute at Worchester?

A. Prior to that time I was connected with the Mallicrout Chemical Works of New York City, and also engaged in experimental work with Parke Davis & Company of Detroit, Michigan, and Boston, Mass., and New York.

Q. What position do you now hold with the Bureau of Chemistry?

A. Assistant Chemist.

Q. Did you hold that position in October, 1909?

A. Yes, sir.

Q. State whether, about the time of the seizure in this case, that is in October, 1909, and towards the latter part there was received at the Bureau of Chemistry at Washington and came under your supervision any samples or purported samples of Coca-Cola syrup?

A. Yes, sir.

Q. Now, if the Bureau of Chemistry and you as one of its employes has a method or arrangement by which it can be determined whether a shipment is intact from the time it leaves the hands of an inspector until it is received by you, tell what that method is that is employed.

A. The seals which the inspector puts on his sample when he takes it are intact, and if the seals are intact when we receive it we know the product has not been opened or tampered with.

Q. Did you hear the testimony of the witness J. L. Lynch who has just left the stand?

A. A part of it.

Q. Did you hear that portion of his testimony dealing with the taking of the samples and the transmission of them to the bureau at Washington?

A. Yes, sir.

Q. State whether or not you received these samples,

these three samples that he referred to, identified with the serial numbers he gave?

A. Yes, sir.

Q. Did you or not make an analysis of any one or more of these samples?

A. I made an analysis of all of them.

Q. Of all of them?

A. Yes, sir.

Q. Did you or not make an analysis for the purpose of determining the caffein content?

A. Yes, sir.

Q. State if you can identify the serial numbers that were placed on the two jugs that were taken from the warehouse or storage room of Trigg, Dobbs & Company, as given by Mr. Lynch?

Q. You mean the inspector's number?

Q. Yes.

A. Yes, sir.

Q. Or the receptacle in which these shipments were received by you here in the court room, or I mean in this building?

A. Yes, sir.

Mr. Miller: We will have those brought in if you gentlemen would like to have them, be glad to have them brought in if you prefer. I take it they do not want it done. They are in the adjoining room, and can be produced if desired.

BY MR. MILLER:

Q. State whether or not these shipments were received by you with the seals intact in Washington.

A. They were.

Q. Now state whether the shipment from Triggs, Dobbs & Company with serial number 3324 thereon, being one gallon of the product that was taken out of the barrel of Coca-Cola seized,—that was the Ledger serial?

A. (Interrupting.) I never received any by such number.

Q. What was the number you received it by? GENERAL COX: 3967 and 68?

BY MR. MILLER:

Q. Give us the serial number that you received it by.

A. 3966-B, 3967-B and 3968-B.

Q. You received these three shipments?

A. Yes, sir.

Q. Now, which of these three was it that were taken from the one barrel seized in Trigg, Dobbs & Company's possession?

Mr. Sizer: I object to that.
The Court: Mr. Lynch has already testified that.
Mr. Miller: Very well.

BY MR. MILLER:

Q. Well, give us the analysis of that one keg, the gallon that came from the one keg of mixture 3966-B.
A. You refer to the caffein?
Q. Yes.
A. 1500.
Q. And that would be what proportion to the ounce of the mixture?
A. .92 grains per ounce.
Q. Now how about 3967-B?
A. 1.7 per cent, or 1.02 grains per ounce.
Q. And 3968-B?
A. 1.19 grains per ounce.
Q. That is one and nineteen hundredths grains?
A. Per ounce.
Q. Practically one and one-fifth?
A. Yes, sir.
Q. Now did you or not receive a keg of the mixture that was shipped to Washington from this same product known as 3980?
A. I did.
Q. State whether or not that was intact when received by you?
A. It was.
Q. How was that keg treated, Dr. Fuller, before making your final observations with respect to it?
A. The keg, you say?
Q. Yes.
A. The keg was placed on one end and allowed to stand untouched for three months.
Q. Well, then what did you do?
A. Then I bored a hole in the side of the keg about four inches from the lower part of it, from the base of it, and also bored a small hole in the top and allowed the syrup to run off down to the hole, and then I knocked out the top and filtered what was left here through a piece of filter paper and washed it with water afterwards.
Q. Have you or not that filter paper at hand?
A. Yes, sir, I have.
Q. I will get you to state what you found in this filtering of this product as to foreign substances.
A. Undissolved material, a little straw, and materials of a similar nature which looked like hay, and a part of a bumble bee, and some legs of insects and other extrane-

ous matter which was apparently dust or dirt.

Q. Have you those samples and will you please produce them as exposed on that paper?

A. All right.

Q. That is a part of what you got out of that keg?

A. Yes, sir.

Q. On this paper?

A. Yes, sir.

Q. What is this that is on this paper, that is a larger portion here?

A. A part of some insect, possibly a bumble bee or a wasp.

Q. Show it to the jury.

A. All right, sir.

Mr. Miller: Would you gentlemen like to see it?

Mr. Sizer: Yes.

BY MR. MILLER:

Q. Now, doctor, is the color of that paper due to the filtering of the Coca-Cola Syrup through it?

A. Will you ask that question again?

Q. I say, is the coloring of that paper that you have just produced before the jury due to its contact with this Coca-Cola Syrup, the filtering of this syrup?

A. This outside portion, the part that was not washed—I endeavored to get the extraneous matter in the center and not wash the outside part.

Q. Before you had used that paper on this sample, was it colored, or was that the color of the paper; just state what the color of the paper was.

A. It was white.

Q. What is its color now?

A. You mean what is the color of the paper?

Q. Yes.

A. The part where the material is is white and this part up here is brownish.

Q. What do you say caused the white portion in the center?

A. This was washed through with water.

Q. That is the central portion?

A. Yes, sir. It is difficult to wash out the sugar material entirely in such a large quantity from a big piece of paper, and I decided to put the dirt in this portion and wash that and leave this outside.

Q. And the coloring that is on the paper, the darker portion that you describe is due to what?

A. Due to the Coca-Cola.

Q. To the syrup?

A. Yes, sir.

Q. Now as a chemist and from experiments and observations you made from this syrup, I will get you to state whether or not in your opinion the mixture was of a character that the foreign substances of dirt and dust, if any there was, aside from what you have gotten from that keg, would have precipitated and settled in the bottom, or would some of it been drawn off by you?

A. Some of it would have been drawn off.

Q. Why would it not have precipitated and settled in the bottom?

A. This is what we call a very thick mixture, a syrupy mixture, and as such it would tend to hold up the lighter dust and particles which probably never would settle.

Q. Now, what is the color of the caffein, that is, ordinary commercial caffein that would be purchased and used in a mixture of that kind?

A. White.

Q. Crystallized like?

A. Yes, sir.

Q. Powdered?

A. Yes, sir.

Q. State whether or not you were able to determine that there had been any addtion or mixture of commercial caffein to that product, and if so how and why you determined that fact?

A. Well, I don't know as I quite understand your question, but I think it was all added to it.

Q. Now, what was that mixture composed of; tell us that?

A. I found present caffein and phosphoric acid, sugar, water, glycerin, caramel coloring and lime juice and essential oils, oil of cassia was prominent. I did not attempt to determine what the other oils were.

Q. Did you or not find any alcohol in it?

A. A trace of alcohol; a small quantity of alcohol.

Q. And now, what was the result of adding this caramel to the mixture?

A. It gives it a brown coloring.

Q. What is the color of the mixture before the caramel is added?

A. Well, I would not want to say as to that, because I never saw it mixed. I can state what a mixture of similar type would look like.

Q. Well, what would it look like?

MR. SIZER: I object to that. He says he don't know what the color of the mixture was before the caramel was put in.

The Court: Have you ever seen a similar mixture without caramel?

The Witness: Yes, sir.

Mr. Sizer: I object to anything about a similar mixture.

The Court: I mean mixed with the same ingredients, the same ingredients without the caramel.

The Witness: Yes, sir.

BY MR. MILLER:

Q. Tell us how that was, doctor; how it would appear?

A. It would appear nearly colorless, with a little shade of yellowish due to the lime juice and oil.

Q. Now state whether or not you found these substances that you have described in all these samples that you analyzed.

A. I did.

Q. Were you assisted by anyone in making any one or more of these analysis, or was there a check on your work by anyone else?

A. Yes, sir; there was by someone else.

Q. By whom, doctor?

A. By Doctor W. O. Emory.

The Court: What was the per cent of caffein in that keg?

The Witness: I will have to find what the number was.

Mr. Sizer: He said twenty hundredths of one per cent.

The Court: He didn't state the quantity in the keg.

The Witness: Do you mean where the dirt was?

The Court: Yes.

The Witness: It was not determined in the keg where the dirt was.

BY MR. MILLER:

Q. Doctor, are you acquainted with a substance known as "Merchandise No. 5," which is used in the making of Coca-Cola syrup?

A. Yes, sir.

Q. I will get you to state if it has any peculiar odor or smell?

A. It has.

Q. Have you or not analyzed Merchandise No. 5?

A. Yes, sir.

Q. Now, what are the contents of Merchandise No. 5, what did your analysis show?

A. This is a liquid preparation containing 16.1 per cent of alcohol, and a trifle over four per cent, 4.12 ac-

tually of what we know as non-volatile material.

Q. What is that?

A. Non-volatile material is the portion of the substance which is not evaporated; that is, if you take a certain portion and evaporate it upon a steam bath, there is a certain amount left which does not go over at a temperature of one hundred degrees — the degree of volatile principle, which was not alcohol, because alcohol would be volatile, was estimated, and the odor which was characteristic of this ingredient known as toluol.

Q. What is toluol?

A. Toluol is a liquid that is obtained in the distillation of coal tar—it is similar to benzoate.

Q. State what it is that you found in this Merchandise No. 5 that has a peculiar odor or flavor that causes you to recognize that?

A. It is toluol.

Q. Did you or not during either of the years 1908 or 1909 or 1910, or just before that, find any caffein in this Merchandise No. 5?

A. I did.

Q. What amount?

A. 1.001 per cent.

The Court: Is this Merchandise No. 5 an ordinary article of manufacture? Do chemists know what is meant generally by Merchandise No. 5?

The Witness: No, sir. It is not known, only in this drink.

BY MR. MILLER:

Q. State whether or not you have frequently analyzed Merchandise No. 5?

A. I have.

Q. Now then, I will get you to state, doctor, whether or not during the years 1908, 1909 and 1910, or either of those years, you conducted or prepared any mixture for use by the Bureau of Chemistry or any of its departments at Washington for animal experimentation consisting of caffein alone, Coca-Cola syrup or Merchandise No. 5 or one, two or three of these ingredients?

A. I prepared mixtures of water, caffein and Merchandise No. 5, and also mixtures of water and caffein.

Q. And to whom did you deliver these mixtures when you prepared them?

A. To Dr. F. P. Morgan.

Q. Is he present here? As a witness?

A. He is.

Q. Now, in what proportion did you mix those ingredients as respects caffein?

A. The caffein was present in the amount of one grain to the fluid ounce.

Q. In all instances?

A. Yes, sir.

Q. When you mixed the caffein with Merchandise No. 5, did you allow in that connection for the trace of caffein that was in No. 5, and add just enough to make up one grain to the fluid ounce, or how was that?

A. I didn't take that into account.

Q. Why so?

A. The amount I used was fifteen cubic centimeters to twelve hundred cubic centimeters; and the amount of caffein was so relatively small, I mean that which was added and considered caffein, it was considered—I mean that was added as straight caffein and it was considered neglible.

Q. Did you or not deliver to Dr. Morgan also Merchandise No. 5; that is, Merchandise No. 5, about which you have testified, unmixed with any other ingredient?

A. Yes, sir.

Q. It was the genuine Merchandise No. 5 that you gave him?

A. Yes, sir.

Q. What was the object in delivering these mixtures and that Merchandise No. 5 to Dr. Morgan?

A. He wished to experiment with them.

Mr. Miller: You may have the witness, Mr. Sizer.

BY MR. SIZER:

Q. When was it, doctor, that you say you made these analysis of Coca-Cola?

A. Beginning October 26, 1909.

Q. October 26?

A. Yes, sir.

Q. Well, now, you say beginning on October 26th; how long did it take you to make the analysis?

A. My report is dated November 10, 1909.

Q. So that you made the analysis between those two dates, and how many different samples did you analyze?

A. Three.

Q. All from one container, or from different containers?

A. From the three jugs that were received, from three jugs.

Q. What was the method of analysis by which you determined the contents of caffein in those jugs; I want you

to give that in detail and give it slowly so that the stenographer can get it.

A. I first took the specific gravity of the Coca-Cola and in order that in future determinations I would not have to weigh out from the balances every specific sample by taking the volume and multiplying it by the specific gravity you get that—

Q. (Interrupting) In this connection, tell us what the specific gravity was.

A. The specific gravity in the case of sample 3966-B at twenty degrees Centigrade was 1.2885; 3967-B, same temperature, 1.2518; 3968-B at the same temperature, 1.2471.

Proceeding with the analysis: Sixty cubic centimeters of the Coca-Cola syrup were carefully measured at twenty degrees centigrade and poured out in a dish and ammonia water added and allowed to stand over night. The material was then evaporated and extracted five times with alcohol. The alcohol does not mix with the syrup which has been evaporated until all the water is extracted. It will extract from it, however, certain substances which are very soluble in alcohol, and one of such is caffein, and in that way you can make rough separation of caffein from the body of the mixture and in the case of heavy syrup like this it is very difficult to work direct on that—you separate the caffein. The alcoholic experiments were then evaporated to verify for alcohol and the residue dissolved in water and ammonia added and shaken out four times with twenty-five cubic centimeter portions of Chloroform. Chloroform will not mix with water—it does have the object of removing from the solution in water certain substances, one of which is caffein. There are a large number of others which I will not describe now, and from experience it is shown that from a solution made alkaline with ammonia four shakings are sufficient to remove all of the caffein. Now, these take-outs of caffein were combined all together and evaporated to drive off all the chloride. This dissolved into dilute acid and a solution of iodine added. The solution of iodine is prepared in acid solution, throwing out all your caffein that may be dissolved. It throws it out qualitatively and by that I mean it throws every bit out that is in solution. The object of that precipitation was to get the caffein in such a condition that on a subsequent treatment it could be obtained pure, the first take out of it being impure and the result not showing the true percentage. This solution was allowed to stand over night and the next day it was filtered and washed with this iodine solution, and treated

with what we know as sulphuric acid; it is a solution of sulphur dioxide which is one of the chief ingredients from burning brimstone, which you get in your throat when you light a sulphur match. It has the property to break up the iodine. In this case it has the property of breaking up the compound of caffein. Subsequently add ammonia and shake out with chloroform and caffein is obtained in a very pure condition, the chloroform has evaporated. A small quantity of tar coal is added to it and then it is filtered into a weighed dish and the chloroform evaporated and the product or residue weighed. The residue in this instance or in all of these instances in these samples was pure caffein.

Q. Did you follow that same method with each one of these three samples?

A. Yes, sir.

Q. Now it is a fact, is it, that the Government chemists have experienced a great deal of difficulty in getting at the exact quantity of drugs in these soft drinks?

A. Why, I should say no to that.

Q. Did you read a paper before the Association of National Agricultural Chemists at the Raleigh Hotel on the 12th of last November on that subject?

A. I didn't read a paper, but I made some statements in connection with it.

Q. You didn't read a paper?

A. No, sir.

Q. Well, did you make some statement on that subject?

A. Yes, sir, I did.

Q. And the substance of your statement was published in the Post of the next morning, was it?

A. It was not.

Q. Well, there was a publication made that purported to give your statement?

A. Yes, sir; but it didn't state what I said.

Q. You saw that paper, did you?

A. Yes, sir.

Q. Now, I read this statement and ask you to indicate wherein it was incorrect:

"The drugs contained in most soft drinks—

General Cox: I object to the reading of that, because he said it did not state what he had said, and Mr. Sizer is now trying to inject into this lawsuit something somebody else said.

The Court: The objection is sustained. If you propose to contradict this witness as to statements he has made,

you can ask him, but you will have to lay your grounds for contradiction.

BY MR. SIZER:

Q. Did you make this statement at that meeting?

The Court: If it contradicts anything he has said.

Mr. Sizer: (Interrupting) That is to this point—it contradicts him to this point. He says now they have experienced no difficulty in ascertaining the quantity of drugs in soft drinks, and I am ready to show at the meeting if he made the statement he is quoted as having made, he did say that they were having difficulty—I will read you this statement, and then see whether or not you made it.

The Court: I don't think it competent to read the statement. You may ask him if he didn't make that statement, without stating whether it is in a newspaper, or where.

BY MR. SIZER:

Q. I will ask you to state whether or not you stated at this meeting of the Association of the National Argricultural Chemists at the Raleigh Hotel on the 12th of last November that the Government bureau realized that soft drinks contained alcohol, opium, and so forth, but you had been able to fix the quantities of the drugs contained therein?

A. No, sir; I never did.

Q. Were you present at that meeting?

A. Yes, sir.

Q. Did you make any statement with respect to that matter?

A. Yes, sir; with respect to the analyses of soft drinks.

Q. Did you make any statement with respect to the difficulty to ascertain the quantity of drugs in soft drinks?

A. Yes, sir.

Q. What did you say on that subject?

A. I stated at the time these investigations were taken up there were no methods known at that time.

Q. Did you state no methods known at the time you made the statement?

A. No, sir.

Q. That statement was made last November?

A. Yes, sir.

Q. You say you made these analyses of coca cola?

A. Yes, sir.

Q. And you did state in that meeting at that time that at the time the investigation was taken up that no method was known to determine the quantity of drugs in soft drinks?

A. Not as to the investigation of this shipment of coca cola.

Q. Well, to what time did you refer?

A. To the time that the department first began investigations of medicated soft drinks.

Q. What time was that?

A. Nearly four years ago.

Q. Did you, in that statement to the meeting of the chemists, limit your remarks to that period, or did you state generally there had been no way ascertained or definitely fixing the quantities of drugs in these soft drinks?

A. I never made any such a statement.

Q. Did you in that meeting limit your statement as to the difficulty in ascertaining the quantity of drugs in soft drinks to the date on which these investigations on the part of the government commenced?

A. I said at the time the investigation began there were no known methods.

Q. I believe you say you saw that statement in the paper, and that you simply made an oral address to the meeting?

A. Yes, sir, I did.

Q. You are giving now your recollection about what you said?

A. I am stating what I said.

Q. Did you make any correction in the paper of that publication that came out in the Post the next morning?

A. I did not. I wrote a letter to Dr. Wiley explaining what I did say.

The Court: That is immaterial.

BY MR. SIZER.

Q. Now, I believe you say this sample that you sifted through the paper and got the animal remains out of stayed for some time in the container?

A. Yes, sir.

Q. How long?

A. Three months.

Q. Did you make a similar investigation with respect to the other samples of coca cola?

A. No, sir.

Q. And when you undertook to take this sample and make this examination after the container or jug had sat for three months, I believe you say that was a keg, though?

A. Yes, sir; that was a keg.

Q. It was the keg that you got this sample out of?

A. Yes, sir.

Q. And you took the contents out from near the bottom of the keg?

A. Yes, sir.

Q. And you sifted it or filtered it through a piece of paper?

A. Yes, sir.

Q. When was it now that you made that experiment?

A. No, I have not that.

Q. It was perhaps about three months after the date on which the samples reached Washington?

A. Yes, sir; about that time.

Q. Now, how did you identify this substance that you call toluol in merchandise No. 5?

A. By the odor.

Q. Is that the only way?

A. Yes, sir.

Q. How did you identify caramel?

A. Why, by the appearance, simply.

Q. Why, the fact is there is no very definite or exact test known for caramel, is there?

A. I don't know of any.

Q. Do you know of a substance called Xylol?

A. I know about it. I am not very familiar with it.

Q. Is there any difference between xylol and toluol?

A. Why, there is a difference chemically.

Q. What is the difference?

A. I do not know exactly the difference.

Q. What is xylol obtained from?

A. Coal tar.

The Court: What has the bearing of this whole question of toluol on the case?

Mr. Miller: I asked about it so he could identify it.

The Court: There is no charge about any coal tar preparations here.

Mr. Miller: No. I am trying to identify the various samples, and what his analysis was.

BY MR. SIZER.

Q. Now, this toluol comes only from coal tar?

A. Yes, sir.

Q. Are you able positively to state that this merchandise No. 5 contained that substance?

A. I should say that it did.

Q. Judging simply from the odor?

A. Yes, sir.

Q. And anything else?

A. Yes, sir.

Q. Is there any difference between the odor of xylol and toluol?

A. I don't know.

Q. If there is any difference, you don't know what it is?

A. They are very similar substances.

Q. Benzol, xylol and toluol come from coal tar?

A. Yes, sir.

Q. Is there any similar organic substance that has a similar odor to xylol and toluol?

A. I don't know of any.

Q. I want to ask you, doctor, if you made any test of this substance to see whether toluol would burn — it is a very inflammable substance, is it?

A. Yes, sir.

Q. Then why didn't you do that in order to be certain as to what it was?

A. There was not enough of it there, simply to give the odor to the material.

Q. Where was it and in what particular room or building that you took the contents out of this case and ran it through that piece of paper?

A. It was in our supply room, or store room.

Q. The government store room?

A. Yes, sir.

Q. In Washington?

A. Yes, sir.

Q. What was the size, Dr. Fuller, of that keg of coca cola that you took the contents out of three months after it came there? About how many gallons did it contain?

A. I don't know exactly. They call them ten-gallon kegs, but I don't know from measurement.

Q. It looked like something near ten gallons of it?

A. I should judge so.

Q. Now, I want to ask you about your endeavor to determine the quantity of caffein in this compound: Did you identify the caffein as such, or did you simply reach the conclusion it was caffein because of ——

A. (Interrupting) I identified it.

Q. Well, in what way?

A. In the first place, it was obtained in crystals which had the characteristic form, and in the second place it gave what we know as muric reaction; it is a reaction obtained by filtering by hydrochloride acid and potassium chloride and subjected to the fumes of ammonia whereby a very prolonged red color develops; it also had a melting point of 229; it precipitated with iodine and potassium iodine, as I described, and did not precipitate with Myer's reagent and mixture of potassium iodine and muric iodine.

Q. Did you find any theobromine in that compound?

A. No, sir.

Q. How could you tell the difference between theobromine and caffein?

A. Theobromine has a melting point of 330.

Q. That was the only distinguishing test or difference in the melting point?

A. Yes, sir.

Q. Did you apply any test at all for theobromine to that compound.

A. No, sir; none other than the melting point.

Q. How was that?

A. No other than I have described; no, sir.

Q. Now, what did you say the melting point of caffein is?

A. 229, and in some instances it melts at 236, but it is considered to melt from about 227 up to 236; the difference is due to the amount of water which exists in the crystals.

Q. Did you apply that test to this substance and thereby ascertain definitely there was no theobromine in it?

A. Yes, sir.

Q. You did?

A. Yes, sir.

Q. Did the application of that melting test definitely show there was no theobromine in the mixture?

A. Yes, I think so.

Q. You think that there could not have been a minute quantity in there that might have escaped your tests?

A. There might have been a minute trace.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. Dr. Fuller, can you account for, or explain to your satisfaction why it was that the caffein content of these three samples ranged from nine-tenths of one grain to an ounce up to one and nineteen-hundredths grains per ounce?

A. Can I account for it?

Q. Yes.

A. No, I cannot account for it.

Q. Upon the assumption that there was a uniform mixture, can you account for it? I mean to say that the contents were of like volume or of a certain proportion of syrup, a certain proportion of caffein and so on, were utilized and the same quantity of ingredients each time, then could it be accounted for, and if so in what way?

A. It could be accounted for in that they did not use the same amount of caffein.

Q. Now then, assuming they did use the same amount

of caffein, might it be accounted for in the mixing process, and if so how, and in what way?

A. They might have added more water to one than they did to the other, thereby getting a greater volume.

Q. And if they added an equal or a usual complement of water and had not separated the caffein sufficiently, would it or not vary perhaps and be in greater quantity in some portions of the mixture than others?

A. Yes, sir.

Q. With respect to the standard of method adopted by you for determining the caffein content, I will get you to state whether or not from your experience that is a substantially correct and as nearly a correct standard as you know or have heard of.

A. Do you mean the method?

Q .For the determination of the caffein content?

A. Yes, it is.

Q. Is it or not a standard method?

A. I don't know exactly what you mean by a standard method.

Q. Is there any better method to your knowledge?

A. No, sir.

Q. Now, how long have you been engaged in the matter of analyses of soft drinks to ascertain the drug components, that is, drinks of this character, what experience have you had?

A. Nearly four years. Almost ever since I have been in the bureau.

Q. Now this storeroom where you stated this filtering process was conducted, I will get you to state whether or not in there and during the filtering process it was possible for the substances that you have exhibited here to the jury on that paper, to have fallen or dropped into this mixture during the filtering?

A. There was no chance.

Q. State whether or not the exhibit that is presented you and asked that you file as exhibit No. 1, bears the appearance of being caffein, if that is caffein in the crystallized or powdered form as it usually appears?

A. Yes, this resembles caffein.

Q. I will get you to file that as exhibit No. 1 to your deposition.

Mr. Sizer: We object to the introduction of that in that form, your Honor.

The Court: You mean the label?

Mr. Sizer: Yes.

The Court: The objection is sustained.

Mr. Miller: I will take the label off, if your Honor please.

The Court: Very well.

Mr. Miller: I will ask him to file it with the label removed; it has not been seen by the jury.

The Court: Well.

BY MR. MILLER.

Q. Have you some of this caffein that was taken from the coca cola product?

A. Yes, sir.

Q. You have it with you?

A. Yes, sir.

Q. Will you produce that?

A. Yes, sir.

Q. And file it as exhibit No. 2 to your testimony?

A. Yes, sir.

Q. Now that has your seal on it; you sealed it up?

A. Yes, sir.

Q. Why is it that this is colored and why is it that it is not the same color as this exhibit No. 1?

A. This was allowed to crystallize in order to show the crystallized form that caffein will assume, and there was some dust from the outside air that got into it unfortunately.

The Court: You want to seal that up, and no one wants to open that.

Mr. Miller: Yes.

Mr. Sizer: You offer this one in evidence?

Mr. Miller: Yes.

BY MR. MILLER.

Q. Now, in its original state was this substance that was in the bottle labelled and filed as exhibit No. 2, of the same color as this powder in exhibit No. 1?

A. Yes, sir.

Q. Is this powder exhibit No. 1 the color of commercial caffein?

A. It is the color of commercial caffein.

Mr. Miller: We will have a seal put on that, your Honor.

RE-CROSS-EXAMINATION,

BY MR. SIZER:

Q. I want to ask you, Doctor, how long you have been in the business of an analytical chemist?

A. Do you mean with the bureau?

A. Yes, or in any way before you went to the bureau.

A. I was connected with Parke Davis & Company as a chemist for three years.

Q. How long have you been with the government?

A. Four years.

Q. What is your position now.

A. Assistant chemist.

Q. I want to ask you who it was that discovered this method of ascertaining the quantity of drugs in soft drinks. I believe you say that at the outset when the government first commenced these investigations, they had no method?

A. No.

Q. To ascertain that?

A. Yes.

Q. Well, who discovered that method?

A. That method has been evolved in part from experimental work which I have done and which Dr. Emory has done, and from outside sources and different methods of purification, etc.

Q. This method is one evolved by employes in the government service since these investigations commenced?

A. Yes, sir.

Q. I understand that is since you have been investigating originally some four years ago?

A. Yes, sir.

Q. State whether or not at the time this analysis of coca cola product was made, the method for determining caffein content was the one that was employed in your department and that you had evolved as you have described?

A. It was.

Q. Was there any standard or known generally accepted method that you know of for determinations of that kind?

A. No sir.

Q. That is all I will ask you, Dr. Fuller. No, I will ask you whether or not there are such substances as "coca" and "kola" known in their own distinctive names, and if you have samples of either of those?

A. I have.

Q. Are there such substances?

A. There are.

Q. Known under their distinctive names?

A. Yes, sir.

RE-CROSS-EXAMINATION,
BY MR. SIZER:

Q. Now, Doctor, what do you mean when you say there is a substance known as coca?

A. I mean there is a product on the market, a nut which grows in Africa and also in the West Indies, which is known commercially as Kola nut.

Q. Kola nut?

A. Yes, sir.

Q. And if you went to buy kola nut, what would you ask for?

A. I would either ask for kola or kola nut.

Q. Did you ever hear of a man going to buy kola nut asking for kola?

A. I don't know that I ever heard anybody buy it.

Q. Did you ever buy kola nut and ask for kola?

A. I never bought one.

Q. You don't know whether such a substance is known generally as kola, or not?

A. Yes sir, I do.

Q. Well, you never bought any?

A. That don't make any difference.

Q. And never heard of anybody else?

A. No, sir.

Q. What you call kola is the nut of the kola tree?

A. Yes, sir.

Q. And you never heard anyone call that nut kola?

A. Yes, sir.

Q. Who?

A. Chemists.

Q. What particular chemists? What chemists did you ever hear call kola nut kola?

A. I don't know as I could name any specific one now, but I have heard it very often.

Q. And the kola tree you say is found where?

A. In Africa and in the West Indies.

Q. And the kola nut is the fruit of that tree?

A. Yes, sir.

Q. And the kernel of the nut that grows on the tree?

A. Yes, sir.

Q. And, as a matter of fact, aside from chemists and people of that kind, the kola nut is not sold in this country at all?

A. Chemists and who?

Q. And people of that kind, scientific men who buy it for scientific purposes.

A. It is used by manufacturing pharmacists to make kola preparations.

Q. By manufacturing pharmacists and chemists?

A. Yes, sir.

Q. It is not an article bought and sold in the market by people generally?

A. No, sir.

Q. And the only product of the kola tree that is ever seen in this country is the kola nut?

A. Yes, sir.

Q. Now coca; what do you say coca is?

A. The leaf from a tree which grows in South America and to a considerable extent in Java.

Q. Well, don't you know that coca is the name of the tree on which that leaf grows?

A. Yes.

Q. It is the coca tree?

A. Yes.

Q. And the only product of the coca tree that is ever seen in this country is the coca leaf?

A. Yes, sir.

Q. And it is bought and sold and dealt in as the coca leaf?

A. As coca, yes.

Q. As the coca leaf?

A. Not necessarily.

Q. Did you ever buy any coca leaf?

A. I never bought any.

Q. Did you ever hear anybody buy or sell any coca leaf under the name of coca?

A. Yes, sir.

Q. Who?

A. Manufacturing pharmacists and drug brokers.

Q. Well, did you ever hear a man go into a store and ask for coca when he wanted coca leaf?

A. Yes.

Q. Who was that?

A. I don't know.

Q. If you don't know who it was, how do you know you heard it?

A. Well, I never expected the question to come up in court, and don't remember it.

Q. Don't you know it to be a fact that if a man wants any coca leaves, he will go to a drug store and call for coca leaves?

A. I don't know it. I know he would ask for coca or coca leaf.

Q. He can ask for either indiscriminately?

A. Yes.

Q. But you never heard a single man, so far as you know, go and buy it?

A. Yes, sir, I have.

Q. But you don't remember where it was?

A. No, sir.

Q. But you often heard them call for coca leaf under the name of coca?

A. I have heard them call for coca.

Q. Well, is it not a fact that if you go into the ordinary store and call for coca that they would give you chocolate?

A. No sir, they would not.

Q. Is it a fact that there is a paste made of chocolate that is generally sold and known under the name of coca?

A. No sir, called cocoa.

Q. Did you ever hear it called that by any man who sold it?

A. I don't know of any man selling it.

Q. Did you ever hear it called cocoa by any man who wanted to buy it?

A. No sir.

Q. Well, is it not a fact that 99 people out of a hundred who want to buy it, call it cocoa?

A. What is that?

Q. That paste of chocolate that is spelled cocoa, they call it cocoa?

A. They don't call it coca.

Q. Is it called cocoa?

A. It is.

Q. Well, whenever it is called cocoa ——

A. (Interrupting) I never heard it called that — you might think he was saying that, but we know what he says.

Q. You say you never heard a man call it cocoa?

A. No sir; never have.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor, what is meant by "pharmacopoea" that is referred to in this Food and Drugs Act?

A. It is a book of standards that is gotten out by the Committee; I can't give all the details of it, for I am not familiar with it, but the book is recognized as a standard under the law; that is, certain ——

Q. How is this substance that you refer to as coca referred to or named in the United States Pharmacopoea, as coca leaf or coca?

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: Well, I will bring the book in, if I have it to do.

Mr. Sizer: Yes.

The Court: The objection is sustained, on the ground that the book is the best evidence.

Mr. Miller: We will bring the book in, and will ask leave to recall the witness who is on the stand.

The Court: Very well.

BY MR. MILLER:

Q. State, Dr. Fuller, during your connection with Parke Davis & Company, manufacturing chemists and druggists, and this chemical concern in New York, and during your chemical career, you have ever known of a product sold on the market as coca leaf?

A. I have.

Q. Now is that or not that coca leaf to which you have referred generally, and which is popularly called "coca" by the trade?

A. It is.

Q. How about this kola nut that you have referred to?

A. That is kola.

Q. You say you have some of the kola and coca there?

A. I have.

Q. Will you kindly exhibit them?

A. Yes sir.

Q. I will ask you to please file those as exhibits three and four to your testimony, marking them for that purpose.

Mr. Sizer: I would like to see them if you are going to offer them in evidence.

Mr. Miller: We are going to ask him to file them as exhibits.

Mr. Sizer: Well, we wanted to know.

The Court: Let him mark the coca leaves No. 3 and the kola nuts No. 4.

Mr. Miller: And when that is done, that is all we care to ask the witness.

RE-CROSS-EXAMINATION.

BY MR. SIZER:

Q. Now, Dr. Fuller, you know of a nut that is known as the hickory nut, don't you?

A. Yes, sir.

Q. Well, if you were going to buy a bushel of hickory nuts, would you ask for a bushel of hickory?

Mr. Miller: Now I object to that question.

The Court: The objection is sustained. That is a matter of argument.

BY MR. SIZER:

Q. Did you ever sell any coca leaves and kola nuts while you were in the employ of Parke Davis & Company?

A. No.

Q. Then you don't know under what name they sold them?

A. I do.

Q. Did you ever hear any of the other salesmen sell any?

A. Yes, sir.

Q. Did you ever hear anyone come in and call for them?

A. Yes, sir.

Q. Do you know who they were?

A. No, sir.

Q. How many times did you ever hear them call for them under that name; do you know?

A. No, sir.

Q. Were any bills made out for them as "Kola" or "Coca"?

A. I could not say.

Q. And isn't it a fact when they sent out bills the man was charged with coca leaves and kola nuts?

BY MR. MILLER:

Q. Doctor, kindly put your initials on this if you will, and have it properly numbered.

A. All right, sir.

(Thereupon, at four o'clock p. m., the court adjourned until nine o'clock tomorrow morning, Tuesday, March 14, 1911.)

Chattanooga, Tennessee, Tuesday, March 14, 1911,
Nine o'clock A. M.

The Court met pursuant to adjournment.

Appearances, the same as on yesterday.

The Court: You may proceed with this case.

Thereupon, DR. H. C. FULLER resumed the stand for further

CROSS-EXAMINATION

BY MR. SIZER:

Q. Dr. Fuller, I believe you testified on yesterday that before you went into the Government service you were employed by Parke, Davis & Co.

A. Yes, sir.

Q. In what capacity, Doctor?

A. As chemist.

Q. Your duties were confined, were they, to the Chemical Department?

A. Yes, sir; practically all the time. I did some special work among the physicians, but it was in a scientific way.

Q. You had nothing to do, however, with the commercial department, the buying and selling?

A. Well, in connection with the physicians I had something to do with the selling, but it was more concerned with specialties.

Q. Now, Doctor, I want to hand you a price list of Parke, Davis & Co., and ask you whether you find coca leaves or kola nuts quoted in that price list, and if so, under what name. (Handing witness document.)

A. (After examination) I find coca leaves; yes, sir.

Q. Coca leaves?

A. Yes, sir.

Q. You do not find any coca, do you?

A. No, sir.

Q. Do you find any kola nuts?

A. (After examination) I do not find any kola at all here.

Q. You do not find any kola nuts, either, do you?

A. I do not find any kola.

The Court: Answer the question.

BY MR. SIZER:

Q. Well, do you find kola nuts?

A. No, sir.

Q. You are familiar by reputation with the firm of R. Hillier's Son Co., of 100 William street, New York?

A. I know of them.

Q. They are large importers and dealers in drugs, are they not?

A. I think so.

Q. I hand you now "Jobbers' and Manufacturers' Package Price List of R. Hillier's Son Co." and ask you whether you find coca leaves and kola nut quoted in there, and if so, under what name. (Handing witness pamphlet.)

A. (After examination) Kola nut.

Q. How is that spelled?

A. K-o-l-a.

Q. K-o-l-a. You do not find any kola?

A. I find kola; yes, sir.

Q. You mean to say that there is any kola quoted in that price list?

A. There is.

Q. Just read it, please.

A. "Kola nuts, eight and nine cents."

Q. Yes. I did not ask you about kola nuts.

The Court: The witness will please answer the question. When he is asked about kola he will answer about kola and not about kola nuts.

BY MR. SIZER:

Q. Do you find any kola quoted in that list?

A. Why, certainly I do.

Q. Just read it.

A. I read it. "Kola nuts, eight and nine cents."

Q. I did not ask you about kola nuts. I asked you if you found any kola quoted in that list.

The Court: Doctor, do not answer again about kola nuts when you are asked about kola. Answer what you are asked about and not about anything else.

BY MR. SIZER:

Q. Do you find any kola quoted on that list?

A. I cannot answer that.

Mr. Miller: The witness applies the terms indiscriminately. Mr. Sizer means kola.

The Court: He has made it clear to the witness that he is distinguishing as between kola nuts and kola, and the witness must answer about that and not about anything else.

The witness: I do not understand there is anything else.

BY MR. SIZER:

Q. I asked you the simple question whether you found anything quoted in there under the single name of kola on that list.

A. No, sir.

Q. Do you find any cocoa quoted there?

A. No, sir.

Q. Do you know of the firm of J. L. Hopkins & Co., of 100 William street, New York?

A. Yes, sir.

Q. They are large dealers in drugs?

A. Yes, sir.

Q. I hand you their price list and ask you to look it over and state if you find anything about coca leaves or kola nuts in there, and if so, under what name they are quoted, or either one of them. (Handing witness pamphlet.)

A. I find coca leaves.

Q. Coca leaves. Do you find any coca?

A. Well, I cannot answer that question, in the way it is asked.

Q. Yes, you can.

A. No, I cannot, either, because I understand coca to mean coca leaves.

Q. I did not ask you what you understood. I asked you the simple question whether you found anything quoted under the single name of coca in that list.

A. Well, to be consistent, I do.

Q. What is it?

A. Coca leaves.

Q. I did not ask you about that, Dr. Fuller, and the Judge has already instructed you to answer my question the way I put it. Do you find anything quoted under the single name "Coca" in that list? Do you find the word "Coca" quoted, the single word?

A. No, sir.

Q. Kola nuts are not quoted on that list, are they?

A. Yes, sir.

Q. Under what name?

A. Kola nuts.

Q. You do not find anything quoted under the single name of kola in that list, do you?

A. No, sir.

Mr. Sizer: Now, I desire to file these three price lists in evidence, your Honor.

The Court: That may be done. I think their exhibit numbers will be 5, 6 and 7.

(The price lists referred to are made a part of this record and are filed herewith, marked Exhibits Fuller Nos. 5, 6 and 7, respectively.)

BY MR. SIZER:

Q. I believe you stated on yesterday that this method of analysis by which you determined the quantity of caffeine in Coca-Cola was one evolved by yourself and the other employes in the office.

A. Yes, sir.

Q. You just got it up yourself and determined that it was a good method?

A. Yes, sir.

Q. I hand you the Official and Professional Methods of Analyses, published by the Government printing office, being a reprint of a bulletin issued in February, 1910, and edited by Dr. Harvey W. Wiley, and ask you if this bulletin does not provide certain methods of analyses for determining the caffeine in tea and coffee.

A. It does.

Mr. Sizer: We offer this bulletin in evidence, your Honor.

Mr. Miller: I do not admit that the bulletin is competent but I have no objection to its being offered in evidence.

Mr. Sizer: It is printed by the Government printing office, your Honor.

Mr. Miller: We are perfectly willing that it be filed as an exhibit but reserve our right to except to it for incompetency, after we have had an opportunity to inspect it. I do not know but what it may be a misprint. I have had no opportunity thus far to see this exhibit.

The Court: Let it be filed subject to such exception.

REDIRECT EXAMINATION, BY MR. MILLER.

Q. Now, Dr. Fuller, are you acquainted with what is known as the United States Pharmacopea, referred to in this Food and Drugs Act?

A. Yes, sir.

Q. Would you recognize a copy of the United States Pharmacopea if it were presented to you?

A. Yes.

Q. I will ask you to examine the treatise now presented and state whether or not that is a copy of the official United States Pharmacopea.

A. Yes, sir; this is an official copy.

Q. Can you turn in that treatise to the term "Coca" if there be such a thing in it and state how this coca or coca leaf about which you have been interrogated by adverse counsel is listed and treated and what is said on that subject with reference to the name? What is the name of the product as given there?

A. It is named coca, c-o-c-a. Following that is the description.

Q. Just give us the description of it as defined there, the definition.

A. "The dried leaves of erythroxylon coca. Lamark (Family erythroxyleae) known commercially as Huanuco Coca, or of E. Truxillense Rusby, known commercially as Truxillo Coca, yielding, when assayed by the process given below, not less than 0.5 per cent. of the ether-soluble alkaloids of Coca."

Q. Now, Doctor, are you acquainted with that drug that they are treating there as coca and spelled like it is there, and if so, what is the active constituent or principal of that drug?

A. The chief active constituent is cocaine. There are a number of other alkaloids very similar to cocaine, derivatives of cocaine, but the cocaine is the chief ingredient.

Q. State whether or not you analyzed this Coca-Cola mixture, or Coca-Cola syrup that you testified about yesterday which was shipped from this seizure, and, if you found any coca in it.

A. I did not.
Q. Did you find any cocaine in it?
A. I did not.
Q. You examined for that purpose, did you?
A. Yes, sir.
Q. Now, turn to kola, please, in the United States Pharmacopea, if there be such a product or substance treated there, and tell us under what head that is treated and how it is defined.
A. Kola is not in the Pharmacopea.
Q. Is kola nut in the Pharmacopea?
A. It is not.
Q. Neither of them? Is there such a substance or product in there as coca leaf, or anything treated under the head of coca leaf?
A. No, sir.
Q. By whom is that Pharmacopea compiled? And state if you are acquainted with any of the gentlemen that are now present who assisted in compiling that.
A. It is compiled by a committee consisting of a number of chemists and physicians.
Q. Are any of them now present?
A. Doctor Rusby is here.
Q. Anybody else?
A. And Doctor Haines.
Q. Is that Doctor Haines who is appearing here on behalf of the Coca-Cola Company?
The Court: Well—proceed to examine the witness.

BY MR. MILLER.

Q. I will ask you if Dr. Haines is present in the court room.
The Court: Unless he becomes a witness it is immaterial.
Mr. Miller: Very well. You may omit the remainder of that for the present.

BY MR. MILLER.

Q. Now, are you acquainted with—I will get you to file that Pharmacopoeia as Exhibit No. 8 to your testimony in this case. You may answer, please, "I do so."
(The book referred to is filed herewith and made a part of this record, marked Exhibit Fuller No. 8.)
Q. Now, I will ask you if you are acquainted with or know the firm of H. K. Mulford Co., Doctor.
A. Yes, sir; I do.
Q. State in what business the firm of H. K. Mulford is engaged.

A. Pharmaceutical chemists.

Q. Does that firm issue a price list?

A. Yes, sir.

Q. I will pass you the catalogue or price list of H. K. Mulford Co. and will ask you to file that as Exhibit No. 9 to your testimony, and state how coca leaf or coca, as you have used the terms indiscriminately, are listed in that catalogue, under what head. Likewise, extracts or fluid extracts, if there be any.

(The pamphlet referred to is filed herewith, marked Exhibit Fuller No. 9 and is made a part of this record.)

Under the section of "Fluid Extracts" I find coca "Coca, U. S. P. (assayed)."

Q. What does "U. S. P." mean?

A. United States Pharmacopoeia, — "(assayed)" "(Erythroxylon coca.)"

Q. Is that the same substance that you have referred to indiscriminately as coca and coca leaf?

A. Yes, sir.

Q. Of which the active principal is caffeine?

A. Yes, sir.

Q. Now, as respects kola, what do you find in that price list?

A. "Kola, N. F. (assayed), (Cola accuminata)."

Q. How does that firm stand in respect to rating, and as to whether or not it is recognized as a standard importing and selling firm throughout the United States, well-known?

A. It is.

Q. I will pass you the National Standard Dispensatory, or what purports to be a copy of it, and ask you whether or not you recognize that as a copy, and if so, please file it as Exhibit No. 10.

A. Yes, sir.

(The book referred to is filed herewith and made a part of this record, marked Exhibit Fuller No. 10.)

BY MR. MILLER.

Now, state how these substances that you have referred to as coca and kalo are there defined or treated, and under what name.

A. On page 462, "Coca," and then there is a description following.

Q. The same in substance as you have previously read?

A. Yes, sir.

Q. That definition of the coca leaf?

A. Yes, sir.

Q. Now, as to kola.

A. On page 475, "Kola,"—spelled two ways, k-o-l-a and c-o-l-a, and the description following.

Q. Is that the definition or description of the kola nut of which you have testified?

A. Yes, sir.

Q. Now, I will ask you to file as Exhibit No. 11, a sample of Parke, Davis & Co.'s preparation of fluid extract of coca and ask you if you recognize that as a standard preparation known generally on the market as coca—I mean, fluid extract of coca.

A. Yes, sir.

Q. Has it "Coca Leaf" on it, or just merely "Coca?"

A. Coca.

Q. Just pass that to the jury, if you will, Doctor, after Mr. Hirsch has seen it.—Do you know of such a firm as E. R. Squibb & Sons, of Brooklyn?

A. Yes, sir.

Q. What business is that firm engaged in?

A. Pharmaceutical chemists.

Q. On a large or small scale?

A. A large scale.

Q. I will pass you what purports to be a preparation of that firm properly labeled as "Fluidextract of Coca" and ask you if you recognize it as such.

A. Yes, sir.

Q. Is that generally bought and sold on the market in that form?

A. Yes, sir.

Q. Both that and that previous exhibit that you have filed are Parke, Davis & Co.?

A. Yes, sir.

Q. Please file that last preparation of Squibb & Sons as Exhibit 12 to your testimony and pass them to the jury, please, and let them see how they are labeled.

The Court: I am inclined to think that there is one number which has been dropped there and you had better number them in pencil and then the stenographer writing out the testimony will correct that.

BY MR. MILLER.

Q. Now, is there a reference on either of these extracts, as you say they are usually bottled,—"Coca Leaf" or merely "Coca"?

A. Please let me see that again. (Examining bottles)

Q. What does that say?

A. "Part employed—the leaves." That is on Parke-Davis'.

Q. That is under the general title of "Coca"?

A. Yes. It follows the name; that is below.

Q. The part employed is the leaves and that is what you say the cocaine is in?

A. Yes, sir. Then in Squibb's it states, "Prepared by the Squibb repercolation process, from the dried leaves of Erythroxylon Coca, or E. Truxillense (Fam. Erythroxylacae.)"

Q. Is there any other portion of the growth of this erythroxylon that you talk about that is bought and sold or known on the market as coca, except the leaf?

A. No, sir.

Q. Now, did you see the design, the pictorial design, if one there was, on the keg of this Coca-Cola syrup that was sent up to Washington and which you filtered and obtained one of those exhibits from that you produced yesterday, and if so, I will get you to state what was the design on it. In other words—

Mr. Sizer: We object to that. The label itself would be the best evidence of what was on it.

The Court: The objection is sustained.

Mr. Miller: We will have the keg brought in, your honor please.

Mr. Sizer: We should like to see that.

Mr. Miller: I will ask you, Mr. Marshal, to have the keg brought in, please, sir. Just bring it around where the witness can identify it, please.

(Thereupon the marshal produced the keg referred to and it was brought forward and placed before the Court and jury.)

BY MR. MILLER.

Q. Now, state whether or not the keg from which you drew the sample had on it the pictorial design contained on this particular keg.

A. It had a similar one.

Q. Now, then, if the coca or the kola, that product under the general names of coca and kola about which you have been interrogated, appear on that design, point it out to the jury, and just say what it is.

A. (Indicating) This is a representation of kola nuts and this of the coca leaf.

Gen. Cox: The jury cannot see that.

A. These are representations of the kola nuts and this of the coca leaf. (Pointing out on keg.)

BY MR. MILLER.

Q. Now, then, is that nut all that appears on there that you say is the product of the kola nut or growth like these

nuts that have been produced and filed here? I mean, is that a pictorial representation of this same nut?

A. Yes, sir.

Mr. Sizer: I object to that, your Honor. The nuts show for themselves. He has testified to what he understands that picture to be.

BY MR. MILLER.

Q. I will ask you whether or not that is a picture of this same nut.

A. (The witness nodds his head affirmatively.)

Mr. Sizer: I object to that, your Honor.

The Court: The objection is sustained.

Mr. Miller: It it or not —

The Court: I do that on the ground that the original nut being in court and the picture being a matter not for expert testimony but for the jury to determine for themselves.

BY MR. MILLER.

Q. Now, this coca leaf that has been filed that you say is the same thing as the kola—

Mr. Sizer: I object, may it please your Honor, to counsel quoting or undertaking to set forth in his question what the witness has testified.

Mr. Miller: Well, I will withdraw that form of question.

BY MR. MILLER.

Q. Under the title "Coca, U. S. P.," there has been filed an exhibit. What does "U. S. P." mean?

A. United States Pharmacopoeia.

Q. Is this leaf that is in the container in its original or native state or has it been dried?

A. It has been dried.

Q. What was its color before it was dried?

A. Green.

Mr. Sizer: Your Honor, there are a number of these bottles that are introduced here which have labels that were put on them by the Department of Agriculture. We submit that before the bottles are submitted to the jury those labels should be removed.

The court: They may covered over.

Mr. Sizer: Yes, sir.

BY MR. MILLER.

Q. I present you a treatise entitled: "American Homeopathic Pharmacopoeia," and ask you if you recog-

nize that as a publication of the Pharmacopoeia by the Homeopathists of America.

A. Yes sir.

Q. Under what title is this coca product of which you have filed an exhibit in the form of the leaf treated in that publication?

A. Coca.

Q. How is it spelled?

A. Coca—c-o-c-a.

Q. And what is the definition of it?

A. "Synonyms: Erythroxylon coca, Lamarck. Hayo. Ipadu."

Q. State whether or not that is in substance the same as those definitions read from the Pharmacopoeia, the United State Pharmacopoeia.

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: Those are technical terms, your Honor.

The Court: That is a matter for the jury.

Mr. Miller: We wish to file that as Exhibit 13.

The Court: It is understood as to these books that are exhibited that only such part of the book as is called attention to will be considered in evidence.

Mr. Miller: I am not sure that keg was put in evidence. If it was not, I wish to file that keg, or have it filed as Exhibit —, the keg identified here with the pictorial design referred to on it, as Exhibit to the witness' testimony.

CROSS-EXAMINATION, BY MR. SIZER.

Q. This treatise you have just filed, styled, "The American Homeopathic Pharmacopoeia," that is a list of medicines and drugs used for medical purposes, is it not?

A. Yes, sir.

Q. And the price list of H. K. Mulford & Co., or that portion of it from which you read, relates to pharmacopoeial drugs, does it not?

A. Not to crude drugs; to pharmacopoeial national? formulae — yes.

Q. It relates to drugs as prepared and used for medical purposes?

A. Yes, sir.

Q. And the national standard dispensatory also relates to medical preparations and drugs used for medicinal purposes?

A. Yes, sir.

Q. And the same is true of the Pharmacopoeia of the United States?

A. Yes, sir.

Q. Now, this bottle which you filed as Exhibit No. — marked "Fluid extract No. 150, Coca,"—"Fluid Extract" —that is a fluid extract, it is not?

A. Yes, sir.

Q. To which the name "Coca" is applied?

A. Well, it is fluid extract of coca.

Q. Well, this is a fluid extract which contains the name "Coca," and that is a fluid extract, is it not?

A. Yes, sir.

Q. That contains cocaine, does it not?

A. Yes, sir.

Q. And this also is a fluid extract containing cocaine? (Referring to Exhibit No. 12.)

A. Yes, sir.

Q. Did you ever see any green coca leaves, Doctor?

A. Yes.

Q. Where?

A. Well, they occur commercially. They dry that way, very often.

Q. In their native state?

A. Yes.

Q. Do they look anything like the leaves on the top of that keg?

They are similar; yes, sir.

Q. A great many other leaves look just like that; there are a great many other leaves that look just like that, are there not?

A. I don't know. I do not think so.

Q. What particular characteristic is there about that leaf as represented on that label that enables you to identify that as a coca leaf?

A. The shape of the leaf and the little buds there next to the leaf on the stem.

Q. Is that all?

A. Yes, sir; that is all.

Q. Did you ever see any coca leaves with little buds next to the stem like that?

A. Yes, sir.

Q. Where was that? Are they the green leaf or the dry leaf?

A. That is the dry leaf.

Q. A dry leaf. Did you ever see any green coca leaves with little buds on the stem that way?

A. You mean growing?

Q. Yes, sir.

A. No, sir.

Q. And that is the only characteristic now, the shape of that leaf, you say, and the fact that there are little buds

on the stem is the only method by which you identify those as coca leaves?

A. Yes, sir.

Q. Do you undertake to say, Doctor, that there are no other leaves that have those little buds on the stem?

A. No, sir.

Q. Do you undertake to say that there are no other leaves shaped similarly to those?

A. Well, I don't know; not with little buds on the stem, though.

Q. Now, you have just stated that you are not prepared to say that there are not other leaves with little buds on the stem?

A. I know it.

Q. And you say that you are prepared, or are you prepared to say, that there are not other leaves shaped like this?

A. There are.

Q. How do you identify the kola nut there. Did you you ever see any green kola nuts?

A. Yes, sir.

Q. Where was that?

A. I have seen them brought in. I have seen them exhibited.

Q. Do they bring them in green to this country?

A Not very often, no,—purchased them for experimental purposes.

Q. What is there about the particular substances that you call nuts on that label that enables you to identify them as kola nuts?

A. The shape and color.

Q. Are there not other nuts of that same shape and color?

A. I don't know of any.

Q. Does not that look about as much like a chocolate drop as anything else?

A. No, sir.

Q. It does not?

A. No, sir.

Q. It does not look anything like a chocolate drop?

A. No, sir.

Q. Does it look anything like a butternut?

A. No, sir.

Q. It does not look like any other kind of nut except a kola nut?

A. No, sir.

Q. You are sure of that?

A. Yes, sir.

Q. You are sure you have seen kola nuts of that precise shape?

A. Yes, sir.

Q. How large are the kola nuts?

A. The green kola nuts are very little larger than those dry ones that are on exhibit.

Q. Are they not a good deal larger than that?

A. Some of them may be.

Q. As a matter of fact, are not those dry ones simply the kernels out of the nuts?

A. Yes, sir.

Q. And the nuts themselves have a big husk on them, do they not?

A. They have an outside covering.

Q. And a number of those kernels would be contained in each nut, would they not?

A. Yes, sir.

The Court: Is this article that you call the fluid extract of coca anything that is commonly known as cocaine?

The Witness: No. Cocaine is the active principal of coca leaves.

The Court: It contains cocaine?

The Witness: Yes, sir; it contains cocaine.

BY MR. SIZER.

Q. Doctor, in the regulations adopted by the three secretaries for the enforcement of this Pure Food Law, Regulation No. 28 on page 11, under the head of "Cocaine," there is this list that purports to give a list of substances containing the different alkaloids, is it not true that in that list one substance containing cocaine is stated to be coca leaves?

Mr. Miller: Your Honor please, I object to that. I submit that is not pertinent or relevant at all. I do not conceive it to be material. I have no objection to his exhibiting it. I submit it is not relevant in the first place, and in the second place it is not relevant to this controversy.

Mr. Sizer: It is competent to show what the Government calls coca leaves.

Mr. Miller: That is not binding on the Government.

Mr. Sizer: But it would certainly have some bearing on the name.

The Court: The exception is overruled.

The Witness: Coca leaves is an infusion of coca.

BY MR. SIZER.

Q. Coca leaves are given there as one of the substances containing cocaine, is that right?

Q. Yes, sir.

Mr. Miller: I want that filed, your Honor please. It is the only copy here and if it is put before the witness I wish to see it.

Mr. Sizer: I do not want to file my copy, but we will get a copy for the gentleman if he wants it.

The Court: Well, hand it to him if he wants to examine it.

Mr. Sizer: We will give him a copy as soon as Mr. Hirsch can get it out. I do not want to give him mine because it is annotated.

BY MR. SIZER.

Q. Doctor, what did you say about not finding any of the elements of coca leaves in this coca product?

A. Do you mean in Coca-Cola?

Q. Yes.

A. No, sir.

Q. You mean now you did not find any cocaine in it, do you not?

A. I did not find any cocaine, or any chloriphel.

Q. You do not undertake to say that there are no elements in that compound derived from coca leaf?

A. Not in what is known as coca; no, sir.

Q. I did not ask you that; I asked you if you did not mean to state that there was no element in that compound derived from coca leaf.

A. I was not able to find any.

Q. Do you simply mean to say that you were not able to find it, or do you positively assert from the analysis you made as an expert that there are no elements of any compound derived from coca leaves?

A. Not as it is known as coca; no, sir.

Q. I did not ask you anything about what is known as coca, Doctor. I wish you would kindly answer the question as I ask it. Do you undertake to say as an expert from the analysis you made that there are no elements in that compound derived from the coca leaf?

A. No, sir.

Q. You mean that there are none or that you cannot say?

A. There were not any.

Q. So if it is true that there are elements in the compound from coca leaves, you failed to find them by your analysis?

A. There were not any.

Q. You say there were none?

A. No, sir.

Q. Now, Doctor, just give a list of the constituents of coca leaves.

A. Chlorophyll.

Q. That is coloring matter, is it not?

A. Yes; one of the most important constituents to find to arrive at whether there are any coca leaves present. That is one of the best evidences. Cocaine and its various derivatives.

Q. What various derivatives, now? Name them.

A. Well, ecgonine, and derivatives of cocaine, alpha and beta Truxilleuse and sometimes a small quantity of bensol—ecgonine—and of course there is plant extractive matter.

Q. What amount of plant extractive matter?

A. Undetermined.

Q. You do not know what they are? Is that what you mean?

A. Yes. They have no particular value.

Q. You do not know then what those plant extractive matters are?

A. Yes, sir.

Q. What are they?

A. Resins and tannins.

Q. In the coca leaf?

A. Yes, sir.

Q. Is that all, now?

A. Maybe a little sugar.

Q. Well, "maybe"—is there or not a little sugar.

A. I don't know.

Q. What else is there?

A. Those are the chief.

Q. I am not asking you about the chief ones. I am asking you to give all of them.

A. I believe there is a little fat.

Q. Is there a little fat or not?

A. Yes, sir.

Q. How much?

A. I don't know.

Q. What else?

A. I don't know of anything else.

Q. You do not know of anything else. They there are all the substances you know that exist in coca leaves?

A. Yes, sir.

The Court: He has stated that.

BY MR. SIZER.

Did you make a careful examination of this Coca-Cola syrup for chlorophyll, Doctor?

A. Yes, sir.

Q. By what method?

A. Why, in shaking it out to find out whether there were any alkaloidal substance present, the chlorophyll would be extracted at the same time had there been any present, and on evaporating the solvents it would have remained in the residue, and on treating that residue with water or dilute acid it would have remained insoluble and very easily collected. I made very careful examination just for that particular purpose.

Q. That is the method of examination you followed, is it, the one you stated?

A. Yes, sir.

Q. Did you make a test, Doctor, of this syrup, to ascertain whether or not any of these other elements of the coca leaves aside from cocaine and chlorophyll were in it?

A. No, sir.

Q. You did not?

A. No, sir.

Mr. Miller: I feel obliged, your Honor please, to move to exclude that portion of the witness' answer and to cross-examine which deals with the promulgation of some order by one or more secretaries at Washington, because I have had no opportunity to cross-examine as to that, and I have not been furnished with this copy as promised.

Mr. Hirsch: We will send for it.

Mr. Miller: Of course you will send for it but without the opportunity of examining it I cannot re-examine him. I would like to see the phraseology of the order that is inquired about. I will even pay you for it just for a little while, a price, if you will allow me to look at it.

Mr. Sizer: (Handing paper to adversary counsel.) You may see my copy and even read my annotations, if you please.

REDIRECT EXAMINATION, BY MR. MILLER.

Q. Now, Doctor, will you please refer to the portion of this about which you were interrogated by cross-examining counsel.

A. Regulation 28, Section F, under "Cocaine." "Cocaine, alkaloid derivatives; cocaine, hydrochloride alia and other salts; preparations containing cocaine or salts of cocaine, coca leaves; products Elixirs extracts, infusion of coca."

Q. What is meant by an infusion of coca?

A. It is the solution of coca and water.

Q. To take the leaf that you have there and soak it in water?

A. Yes, sir.

Q. All right, proceed.

A. Ointments, paste, pastilles, pills, solutions, syrups, tablets, tinctures, trokeys and wines.

Q. State whether or not coca and kola are drugs.

A. Yes, sir.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. What is the drug coca?

A. The drug coca is the dried leaf from the erythroxylon Truxxillense.

Q. That contains a number of drugs, does it not?

A. It contains a number of alkaloids.

Q. It contains cocaine, and that is a drug, is it not?

A. Yes, sir.

Q. And contains tannin?

A. Yes.

Q. Is tannin a drug?

A. Why, in some ways it is known as a drug. Tannic acid is a drug, yes.

Q. It contains ecogonine, does it?

A. Yes, sir.

Q. And ecgonine is a drug, it it?

A. It is used as a drug. Its derivatives are.

Q. It contains hygrine on that dry leaf?

A. No.

Q. It does not contain hygrine?

A. No.

Q. Does the green leaf contain hygrine?

A. It is reputed to; yes, sir.

Q. Do you know?

A. I am not familiar with the facts of that at the present time.

Q. Are there any other drugs, now, in the coca leaf that you know of?

A. It contains the other alkaloids, derivatives of ecognine, cinnamyl cocaine, and alpha and beta Truxillines, and bensol ecgonine, which I have described before.

(Witness excused.)

W. O. EMERY,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Dr., what is your age?

A. Forty-seven.
Q. Where do you reside?
A. Washington, D. C.
Q. What is your profession?
A. Chemist.
Q. What is your experience as such?
A. I am a graduate of the Worcester Polytechnic, also a student and instructor at Bonn University, Germany.
Q. Where is Bonn University located?
A. On the Rhine, near Cologne.
Q. In Germany?
A. Yes, sir.
Q. Well, what else, what other experience?
A. Subsequently five years in Germany at different periods for research.
Q. And what else?
A. About six years Professor of chemistry at Wabash College.
Q. And locateed where?
A. In Providenceville, Indiana, and nearly four years with the Bureau of Chemistry, Washington, D. C.
Q. Now, if you analyzed any of the samples which Dr. Fuller has testified in your hearing that were taken from the sealed products of the Coca-Cola syrup now under controversy in this case, I wish you would please so state.
A. I analyzed three.
Q. What did your analysis show with respect to the caffeine content?
A. The percentages were about sixteen, nineteen, and twenty-two one-hundredths percent for nos. 3966, 3967, and 3968-B interstate numbers.
Q. State whether or not these percentages were slightly in excess of those found by Dr. Fuller?
Mr. Sizer: I object to that.

BY MR. MILLER.

Q. If they were in excess, state how you account for that?
A. I used a different method.
Q. Yes.
A. And probably longer exhaustion or extraction.
Q. Now, what did your analysis show as to the caffein contents in each ounce of the mixture analyzed by serial interestate numbers?
The Court: You mean the grains per ounce?
Mr. Miller: Yes, per ounce of the Coca-Cola syrup, and you may refer to your notes, if you have them.
The Witness: I think I can state without reference.

Beginning with No. 3966, 67, and 68-B, taking them in that order, the number of grains per ounce was slightly less than one grain to the ounce; the second .10 and the third, .125 grains per ounce.

Q. Now, when that caffeine content was finally determined by you, what was done with it, or what did you do with the article?

A. The true caffeine was purified by a similar process applied by Dr. Fuller, and then examined, and characteristic tests for caffeine applied, the melting point, the solubility, and so forth.

Q. State whether or not you know the substance caffeine when you see it and come in contact with it.

A. Very certainly yes.

Q. And from your analyses, the caffeine contents which you have given, were found by you in these shipments?

A. At least those amounts, yes, sir.

Q. What is this that you say you followed a little longer or practiced a little longer than Dr. Fuller.

A. I used a different solvent and extracted a greater number of times, I believe, than Dr. Fuller.

Mr. Miller: You may cross examine him.

CROSS EXAMINATION, BY MR. SIZER.

Q. Doctor, did you pursue the came method of analysis with all these three samples?

A. Yes, sir, parallel determinations for each.

Q. Were the samples that you used obtained from the same jug or container, or were the samples that you analyzed taken from the same jugs or containers as those analyzed by Dr. Fuller.

A. Yes, sir.

Q. Did you make your analyses before or after Dr. Fuller.

A. After.

Q. Did you take the same length of time on each of those samples.

A. On each of my samples?

Q. Yes?

A. Yes, sir.

Q. You took a longer time than Dr. Fuller did?

A. I could not state as to the time Mr. Fuller employed.

Q. Do you know whether that was the bottler's syrup or the fountain syrup you were analyzing?

A. I have no idea.

Q. And you don't know whether one of them may have

been taken from the fountain syrup and one from the bottler's syrup?

A. I know nothing beyond the numbers on the jug.

Q. Now, wherein did your method of analysis differ from the method adopted by Dr. Fuller?

A. I used chloroform as an extractive agent or solvent, and I think the other method involved alcohol.

Q. Now, just state in detail your entire method of analysis in order to determine the quantity of caffeine in these samples.

A. The sample was treated a number of times with a certain quantity of chloroform, after said sample was rendered slightly ammoniacal by an addition of aqua ammonia. The solvents by this process were nitrated and evaporated, and the chloroform distilled off, and the residue obtained contained the crude caffeine and other accompanying substances, soluble in chloroform under those conditions. This residual matter was dissolved in a small quantity of dilute sulphuric acid filtrated through a wet filter paper, the filter treated with iodine solution. The iodine product forming under these conditions filtered off and washed with iodine solution. Subsequently treated with sulphite, and the aqueous acid solution containing the caffeine extracted a number of times with chloroform, the material thus extracted with chloroform being soluble, was treated with a very small quantity of animal charcoal. Aftering driving off or evaporating the chloroform, the practically colorless, chrystallized residue of caffeine was obtained which gave you a melting point of about 236. Other tests of caffeine were applied. The muric test, and subsequent treatment with ammonia, giving a purple red coloration, indicative of caffeine. Also treatment with ammonia and silver nitrate where by no silver salt was obtained, showing that no other than these xanthine products were present. That was in substance the method pursued to identify the caffeine.

Mr. Sizer: That is all I desire to ask you.

(Witness excused.)

HENRY H. RUSBY,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Mr. Rusby, kindly state your age.

A. Fifty-five.

Q. Where do you reside?

A. Newark, New Jersey.

Q. What is your profession?

A. I am Professor of Materica Medica at the New York College of Pharmacy.

Q. Where were you educated, Dr. Rusby?

A. You mean professionally?

Q. Yes.

A. The College of Physicians and Surgeons of New York and the New York Medical University.

Q. Do you sustain any connection professionally with any medical institutions, and of so, what?

A. The College of Pharmacy of Columbia University. That is not a medical school, it is a school of pharmacy, I have lectured to the medical colleges of New York for a great many years, but not now.

Q. Did you ever sustain any professional connection to Belleview Medical Hospital of New York?

A. Yes, sir, I lectured on Materica Medica there for a great many years.

Q. As Professor of Pharmacy, what are your duties, what subjects do you treat of in the lectures?

A. I lecture on the subject of drugs, their names and synonyms, their origin, history, their properties and uses as drugs.

Q. How long have you been engaged in that kind of work?

A. Since 1889, I have occupied this position, and for four years past, I have examined all the drugs that came to the Port of New York, to determine whether they are true to name and a fit quality for the making of medicine.

Q. That is, the drugs that come to the Port at New York?

A. Yes, sir, for the Department of Agriculture.

Q. Have you any connection with the New York Botanical Garden?

A. I have charge of the Economic Museum where we have all the useful products derived from the plants of the whole world.

Q. Have you any connection with the United States Pharmacopeia that is referred to in the Food and Drugs Act of the United States of June, 1906?

A. I have been a writer for that book since 1890 and am at the present time.

Q. How many members on that board?

A. At present fifty, there have been twenty-five in the past until this year.

Q. I notice on one of the official copies that was put in evidence this morning, the names of three men, among them the name of Rusby, are you that Rusby?

A. You mean in the Dispensatory?

Q. Yes.

A. That was in the Dispensatory, yes, sir.

Q. Have you had any occasion to inquire into the special names of drugs and plants from which drugs are produced for your profession, I mean your experience and professional experience, and if so, how much?

A. It has been one of my specialties in the study of botany, medical botany, to treat of names of plant products, to distinguish between the proper names and the synonyms.

Q. What do you mean when you use the words "proper name" and "synonym"? What relation do they bear to each other, doctor?

A. You are referring now to the different products—medicinal products in the United States Pharmacopeia. This committee of revision of which I have spoken has a sub-committee and the business of this sub-committee is to determine what is the proper name of the article which goes into the Pharmacopeia and that name, when it is finally decided, it goes in first as a heading, and then sometimes put under these different names as synonyms by which it is sometimes known, but in the one that is required by the Pharmacopeia as being the proper one, that stands at the top. I am a member of that sub-committee.

Q. State whether or not you are the author of any books or treatises on Materia Medica.

A. Yes, sir, I wrote Materia Medica for Buck's Reference Hand Book of the Medical Science. I also wrote the part on drugs in the National Dispensary that you speak about.

Q. Are those standard publications?

A. They are.

Q. And generally used and accepted throughout the United States?

A. Yes, sir.

Q. Have you or not written any treaties or pamphlets on the subject of coca?

A. Yes, sir, I have written a pamphlet entitled "Coca at Home and Abroad."

Q. Now, I want to ask you to state whether or not you have ever traveled or studied in the section where coca is grown, and if so, what has been your experience?

A. Yes, sir, I spent nearly a year in the country where coca was grown, and among the people who use it, for the express purpose of studying that plant.

Q. Where is this coca produced or grown?

A. It is chiefly produced in Bolivia, and Peru, some is

produced in northern Chili, and some in Ecuador, Venezuela, Brazil, and Java, but most of it in Bolivia and Peru.

Q. What do you say is used in those sections by the people, where it is produced?

A. They chew it and they say that when they chew this they do not require so much food, and say they can endure exhausting work much better than they can if they do not chew it.

Q. Now, from your experience and observations, state what is the reason for that, what is the ingredient in this coca that permits one to do more work with less food.

A. Well, I don't think that point is settled, I think it is due to several constituents.

Mr. Sizer: I object to that. The witness has not qualified yet as an analyst or analytical chemist, and I submit he is not qualified to testify as an expert as to what particular element there is in these plants that produces certain effects.

The Court: The objection is sustained unless the witness qualifies on that point.

BY MR. MILLER:

Q. State if you have studied and investigated as to the content of this coca product.

A. Yes, sir, during the entire time I was there, I made analyses of the leaves of the shrub, and bark of the root and bark of the stem, and the wood and the flowers, and have taken these in different conditions grown in the shade and sun, young leaves and old leaves, and made very careful studies as to that point.

Q. Now, what are the ingredients for which the natives chew it and get this result which you have described?

A. I think cocaine is one of these things, and I think there is something else in it which has never been described which is only found in the leaf when it is fresh or recently dried.

Q. Now, what is the chief active principle or ingredient of coca?

A. Cocaine.

Q. Is that what is properly pronounced cocaine?

A. It is the same thing.

Q. And under what name is this product, that is the leaves of this tree, or the growth or shrub that you have described as growing principally in Bolivia and Peru, I believe.

A. It is generally known as coca.

Q. It is known and so imported, bought and sold on the American market?

A. It is, I never knew any other name to be used for it in the country where it is used, and you find it sold there in every little country store, just as we sell tobacco and cigars, every grocery store has it, I never knew any other name for it but coca and that name coca was introduced into our langage from its native home, and still used as its name here.

Q. What is coca as it is generally understood, both where it is grown and in this country where it is used?

A. It is the leaf of the Erythroxylon coca, the name of the plant is Erythroxylon Truxillense, that is another one, and it must contain not less than one-half per cent. to other soluble alkaloids, of which cocaine is the principal one.

Q. Why do you mention that it must contain at least that much of that cocaine substance?

A. Because the Pharmacopeia provides that the name cocaine shall not be applied to anything that does not contain that.

Q. Is that the United States Pharmacopeia?

A. Yes, sir, the one the law is based on.

Q. Now, you have referred to the proper name and also to the synonym, now what is the synonym, if one there be, for this coca that you have talked about?

A. It is sometimes called Coca leaves, but the Pharmacopeia does not consider that is necessary because that is—

Mr. Sizer: I object to what the Pharmacopeia considers necessary.

The Witness: Then may I tell what I think?

Mr. Sizer: I object to what the witness considers about it.

The Court: The witness may express his opinion.

BY MR. MILLER:

Q. Go ahead.

A. In the case of some plants, we use both the seed and the plant, and the leaf is a drug and the seed is a drug, and in that instance have to specify the seed and the leaf, and in the name here used, nothing but the coca is used, and so the name coca stands.

Q. Is this product known by any other name than coca in the country where it is grown or produced?

A. It is sometimes pronounced coca. There are several tribes of Indians that use it, and some of these tribes call it coca and others coca, a little different pronunciation in different sections.

State whether or not you have frequently purchased this product on the American market, and if so, how it is called

for, and purchased and bought by you?

A. I have purchased it scores of times, and I never asked for anything but coca, and always receive it and the bill always stated it to be coca and never was coca leaf.

Q. Now, turn to the Pharmacopeia, and give us the proper name, and then if there be synonym given in the Pharmacopeia for this, tell what it is.

The Court: Isn't that all in?

Mr. Miller: I don't believe in respect to that it is.

The Witness: In this case, there are two names, one under the other. Here, the upper name is coca and that is considered to be the official Latin, and under that name occurs the word coca in small letters, and that is given as the English name, no synonym given in this case, that is the only name found in the Pharmacopeia.

Q. Is the only name under which it is given in the Pharmacopeia?

A. Yes, sir, the only name given.

Q. Now, examine the exhibit of what purport to be cola nuts that is here presented to you and which were put in evidence as an exhibit to Dr. Fuller's deposition, and state what the contents of that container are, what it consists of.

A. Cola.

Q. And where is that grown and from where does it come?

A. Africa and the West Indies.

Q. Examine the exhibit filed with the testimony of Dr. Fuller as coca or coca leaves, and tell us what the contents of that jar are.

A. That is coca.

Q. And is that as it is in its native state before it is cured?

A. I don't understand the question.

Q. Are the contents of that jar of the same color as appear in the native state and before it is dried?

A. No, sir, it is much greener before it is dried.

Q. What is the process of drying that that undergoes before it is imported into the United States of America?

A. The leaves are gathered together mostly by women, in bags and then these bags are brought to what is known as a coca board, which consists sometimes of cement and sometimes of clay, and the leaves are spread out on this board. Men watch them continually for fear the rain will fall on them; in that country they have frequent rains, and men watch them and sweep them into some large doors which lead into a shed. After they are dried, they are taken into this shed and left for two or three days. They undergo a sweating process there, as hay does; you dry hay

in the sun and put it in stacks and it gets a little moist from sweating, and then take it out and put it into the sun for an hour or two, and then pack it in bales.

Q. And then are they ready for shipment?

A. Yes, sir.

Q. Now, I will get you to look at the pictorial design on that keg that was filed as an exhibit to Dr. Fuller's deposition, and state whether or not you recognize the green leaf or growth surrounding that sign as representation of any leaf that you have seen in its native state and before being cured, and if so, what.

A. Yes, sir, that is the coca leaf but that is not the one that is in that bottle. There are two varieties of coca and this is the other one.

Q. I believe you say there are two different names, and two different varieties.

A. Yes, sir.

Q. State whether both are known as coca.

A. Both, yes, both are in the Pharmacopeia under that name.

Q. Now, what is the nut or representation of a nut, that appears on that keg?

A. Well, I object to the term "Nut," if you will allow me, because it is not a nut.

Q. What is it?

A. That is cola.

Q. Is that generally recognized as cola where it is bought and sold?

A. Yes, sir. That, I may say, is not the whole seed. The whole seed has on it an outer skin, which has to be taken off of it. As that is pictured on the barrel, it has the skin taken off, as you would skin a bean; take the skin off the outside of it, and what is left is the two halves, that is what you have here.

Q. Is there a synonym given in the Pharmacopeia, or is there a generally recognized synonym for cola, and if so, what is that, Doctor?

A. Cola is not in the Pharmacopeia. It was in the last edition of the Pharmacopeia preceding this one, and the name was cola. Often a synonym used for cola, cola nut, but I say it is an improper synonym, because it is not a nut. That name did not originate in the country where the plant grows, but when cola was first taken or came to England, because it looked something like a nut, the English traders gave to it the name "Nut," but it was simply ignorance in the use of the term, as it is not a nut in any sense of the word.

Q. State whether or not the names of coca and cola are

generally recognized and used as applying to the two exhibits that your attention has been called to that were filed as exhibits to the deposition of Dr. Fuller?

A. Yes, sir, those are the proper names of those two substances.

Q. Are they the generally accepted names for those products?

A. They are.

Q. State for how long, that has been so, for what number of years?

A. Each one?

Q. Well, any during the years 1908 and 1909?

A. Both of them have been known by those names you have been giving them.

Q. What is the constituent of cola?

A. Caffeine.

Q. I have here a publication by Parke, Davis & Company and ask you to refer to page 298 where the synonyms are treated of, and state if you find both the proper name and the synonym of cola there, and if so, tell what is the proper name and what the synonym is.

A. Well, here you strike on an entirely different subject, you are talking here of the name of the plant, the name of the plant and the name of the product that come from the plant. The name of the plant given is Cola Acuminata. That is because there are many species of cola, Cola Vera, etc., and they have taken this one as Cola Acuminata.

Q. Now, what is the synonym?

A. Cola nut — that gives the particular varieties they are treating of —

Mr. Sizer: I object to what it states.

BY MR. MILLER:

Q. What does Acuminata mean in that connection?

A. It refers to the fact that the leaf of the tree from which this cola is obtained is tapered gradually at the end, that is what is called Acuminate leaf. An acute leaf is one that comes to sharp point, but is gradual; is what they call the Cola Acuminata.

Q. In what business is Parke, Davis engaged?

A. Manufacturing druggists.

Q. Did you ever have any connection with the firm?

A. Yes, sir, I was their botanist for nearly ten years. I had nothing to do with the preparation of these books though. They ought to have put a different name in there.

Q. How many varieties of the Cola are there, Doctor, including this Cola Acuminata?

A. Cola Acuminata is one, only one, but Cola Vera is another species of this plant which also yields commercial cola; there are two commercial colas, and they are both of equal quality and one comes from the Acuminata and the other comes from the Cola Vera. That is the definition of the two varieties, of the two plants.

Q. In the ordinary acceptation of the term, if cocaine were eliminated from coca, would it be termed coca?

A. It would not be coca.

Q. Why would it not be coca.

A. Because the Pharmacopeia forbids the use of the term unless cocaine is contained in it.

Q. You state that you are interested in, and connected with inspecting importations in New York. Now, if coca were shipped there without cocaine in it up to this standard that the Pharmacopeia prescribes, would it or not be permitted to enter this country?

A. It would immediately be rejected, because it would not be true to name, and shipped out of the country.

Q. Are you acquainted with the substance that is usually known as caffeine?

A. Yes, sir.

Q. Which you say bears a percentage in the cola product?

A. Yes, sir.

Q. State what are the effects of caffeine, when taken into the human system, if you know, or are qualified to speak?

A. Yes, sir, I lecture on that subject. When caffeine enters into the system, is absorbed into the blood and goes to the nerve centers, especially the intellectual centers; it takes away the sense of fatigue and causes a man to do more work, at least makes a man feel like doing more work, and generally gets more activity out of his nervous system, and after that is over, his nervous system is more or less exhausted, because of the excessive stimulation that it has been subjected to. It also has some influence on the kidneys; it increases the activity of the kidney, it is a diuretic. It also stimulates the heart very powerfully, just as strychnine does, but not so powerfully as strychnine.

Q. Taking into consideration the results of the administration of caffeine, both those that are immediate and those that follow, state whether or not from your experience and observation it is a deleterious ingredient as respects the human health.

A. It is apt to be. I cannot say it is in every case, because it depends on how much of it is taken, and depends

upon the peculiarity of the individual; that very often it has bad effects.

Q. State whether or not it is a drug?

A. It is a drug.

Q. Is it or not prescribed for certain ailments?

A. It is.

Q. By the medical fraternity?

A. It is.

Q. Now, if nine-tenths of a grain, varying from nine-tenths of a grain to one and a quarter grains per ounce of the mixture composed of the ingredients that Dr. Fuller testified to found on chemical analysis of this product, were taken into the system, state whether or not the effect might be injurious to the health of the consumer.

A. You mean one single dose?

Q. One, or more than one?

A. Yes, if it was taken repeatedly, I think it might be.

Q. In the case of nervousness and in young persons as compared with robust and more matured persons, what would be the difference in effect, if any, upon the administration if this drug was given in the quantity I have suggested?

A. That the use of it on a young person, on a child, would be bad, no matter how little he took; it ought not to be allowed at all.

A. State whether or not you have had occasion to observe repeatedly users of Coca-Cola or persons who consumed Coca-Cola, as it is bought and sold in the markets of the South about the years 1908 and 1909, at any time, and if so, tell when.

A. Yes, sir, I have seen people addicted to the use of Coca-Cola as they had to go ——

Mr. Sizer: (Interrupting.) I object to that, because it is a mere matter of opinion unless he shows how people he is talking about use it.

The Court: The witness will state of his own knowledge.

The Witness: Yes, sir, I have seen people who got into the habit of using it. I remember one physician who was in the habit of using it, and he would go every chance he got around the corner to the pharmacy and get a glass of Coca-Cola.

Q. Where was this?

A. One of the suburbs of Charleston.

Q. South Carolina?

A. Yes, sir.

Q. How long were you acquainted with this physician, and how long were you associated with him?

A. I don't remember; it was during my stay there during the summer or during the spring.

Q. What were the effects of this Coca-Cola on him, both when he took it and when he didn't take it?

Mr. Sizer: I object to that, may it please your Honor, the question of apparent effects.

Mr. Miller: Well, the observable effects then.

The Court: The effects the witness saw, he may testify to.

The Witness: I saw that this man was very much like a man who was addicted to the use of alcohol and who has to and get alcohol; and when he does not go and get it — he would go down and get his Coca-Cola.

Q. Did you observe him?

A. I believe I knew of this; I noticed something wrong with the man, that he was nervous and morose, had lost his practice and was generally man, so far as a professional man was concerned; and after this I found out what caused it.

Q. State whether or not you have lived in sections where this product, of which caffeine extract was grown.

A. Which product, there are quite a lot of them?

Q. Any of them where the caffeine producing products are grown?

A. The largest amount of caffeine that is contained in any substance is contained in a substance called guarana, which is in Brazil; I have also lived among those people and seen them use it, and they use it habitually just as our people use tea and coffee; they do not have tea and coffee in that particular part. They use guarana. They take a roll of guarana and file off a certain amount of it and stir it up in water and drink it.

Q. I pass you a substance which I will ask you to file as Exhibit No. 2 to your deposition, and ask you to state if you know what that is.

A. That is guarana, the substance I have just spoken of.

Q. Please have it marked and file as exhibit No. 2.

A. All right.

Q. What is the percentage of caffeine in that product?

A. The Pharmacopeia requires that there be at least three and a half per cent. of it. It sometimes runs up to five per cent., or even a little more than five per cent.

Mr. Sizer: I object to that answer — the question asked witness was what was the quantity of caffein or percentage of caffein in that substance. He answered "the Pharmacopeia requires".

Mr. Miller: Our position is this, that the Food and

Drugs Act prescribes it based on the Pharmacopeia, and that anything there required as a drug must be so deemed, and I ask him to verify what he says on that subject.

Mr. Sizer: You did not catch my point, Mr. Miller. Mr. Miller asked him what percentage of caffeine there was in this particular black stick.

Mr. Miller: I didn't ask what percentage of this, but I asked in guarana product, he has lived among the natives that has used it.

The Court: I overrule the objection.

Mr. Sizer: We object to the statement because the Pharmacopeia here shows for itself ——

The Court: The exception is sustained on the ground that the Pharmacopeia is the best evidence.

Q. I will ask the stenographer who insists on taking out this Pharmacopeia if he will oblige me by returning it, and I will refer to the book where it is found.

Mr. Sizer: I don't object to that, and it is not necessary for the witness to refer to the book and read what is said.

Mr. Miller: I insist that your Honor has ruled that we should read such parts of it as we desire.

The Court: Yes:

BY MR. MILLER:

Q. What effect does the use of this guarana produce on the natives who consume it?

A. It produces paralysis.

Q. Paralysis of what functions or portions of the body?

A. Paralysis of the voluntary muscles, a man's hand will shake if he tries to hold it up. That comes on regularly, and is recognized by people as the effects of the habitual use of guarana in excess. I want to qualify that answer; I don't know whether the term paralysis is proper from a medical standpoint, to apply to it, but it is a case in which a man is unable to control his muscles; what we call shaking palsy.

Q. Shaking palsy?

A. Yes, sir.

The Court: I wish to caution the witnesses present in reference to testimony of witnesses, against any expression of opinion or comment by their actions.

BY MR. MILLER:

Q. Now, Doctor, will you kindly turn to and identify the page of the Pharmacopeia where this definition of guarana is given, and the provision with reference to that, and which will verify, if it will, your statement as to the caffeine contents.

A. On page 231 occurs this—Guarana, dried seed, consisting chiefly of the crushed seeds of Paullinia Dupana, yielding when assayed by the process given below not less than three and a half per cent of its alkaloidal principle.

Q. Just one more thought, Doctor. Do you know whether or not in these countries where caffeine is consumed, as you have stated, by the natives, what is the length of human life there, and whether or not it shortens life?

A. No, sir, I could not tell you.

Q. Do you know what is the average length of life there?

A. No, sir, I don't think there are any statistics in that country.

Mr. Miller: You may cross examine the witness.

CROSS EXAMINATION, BY MR. SIZER.

Q. Where did you say this guarana is used?

A. Well, I didn't say.

Q. Well, I will ask you to say.

A. It is used in the northern part of Brazil, in Venezuela, in Guinea, and in eastern Bolivia.

Q. And the plant that produces it is grown in these countries?

A. No, sir, it is native in Brazil, and from there it is sent to these other countries.

Q. And is very extensively used there?

A. Yes, sir, to about the same extent as coffee and tea are used in this country.

Q. And as a result, I suppose all the inhabitants then in those countries are paralyzed and affected with palsy.

A. No, sir.

Q. Why, you say it produces palsy?

A. Yes, sir, I said in cases, I think you will find that statement correct.

Q. You don't mean to say that the ordinary use of guarana produces palsy?

A. No, sir.

Q. But it is only when used to excess.

A. Yes, sir.

Q. And the fact is that it contains about the same proportion of caffeine as tea and coffee?

A. No, sir, it contains a good deal more.

Q. It contains a good deal more?

A. Yes, sir.

Q. Now, you know that tea and coffee are very extensively used in all civilized countries?

A. Yes, sir.

Q. And it is almost impossible to find an adult of age in a civilized country that does not use tea or coffee?

A. Oh, no sir, they used it until they found out how injurious it was, they are stopping it now.

Q. And how long has it been since they found out how injurious it was?

Mr. Miller: I submit the question put to him with reference to the use of tea and coffee, is not competent—

The Court: I overrule the exception.

BY MR. SIZER.

Q. I will ask that the question be re-read.

(The question was re-read as follows: "It is almost impossible to find an adult in a civilized country that does not use tea or coffee.")

Mr. Sizer: And I will ask that the answer be re-read.

(Answer read as follows: "Oh, no sir, they used it until they found out how injurious it was, they are stopping it now.")

(Q. And how long has it been since they found out how injurious it was.)

Mr. Sizer: Now answer that question.

A. Who?

Q. Well, you say they quit using it, since they found out how injurious it was.

A. Those who have done it, I don't say when each one found it out.

Q. Isn't it true that the use of tea and coffee throughout civilized countries has been continually on the increase?

A. No, sir.

Q. For the last three or four hundred years?

A. No, sir, it is not.

Q. Do you know what the total amount of tea and coffee consumed last year was?

A. I can't give the figures, but I know coffee dealers are complaining that people are giving up the use of coffee and that has decreased the sale of it, and the business is injured.

Q. Where did you hear that complaint?

A. From coffee dealers in New York.

Mr. Miller: To prevent renewing the exception every time, I wish to go on record here without repeating that, that we object to any interrogating of this or any subsequent witness as to the use of tea or coffee and how popular the drinks may be or their effect on humanity, for it is not under investigation in this Court.

The Court: The exception may be noted and is overruled. So far as I am informed now, I may be in error, but I believe these substances contain caffeine.

Mr. Sizer: It is conceded by everybody.

The Court: And on that assumption, the evidence is allowed.

Mr. Miller: We admit that it contains caffeine and that tea contains thein.

The Court: And tea contains thein.

Mr. Miller: Yes.

BY MR. SIZER.

Q. You say in New York.

A. Yes, sir.

Q. When was it you heard that complaint about the people quitting the use of tea and coffee?

A. Several years past.

Q. Is that tea and coffee both?

A. Coffee.

Q. Only coffee?

A. Yes, sir.

Q. Now, Doctor, isn't it a fact that last year, 1909, I should say there were eighteen million pounds of caffeine consumed in the United States alone.

A. I don't know.

Q. You don't know?

A. No, sir, I don't believe it though.

Q. You don't believe it?

A. No, sir.

Q. You would be very much surprised if you found that to be the case?

A. Indeed I should.

The Court: I don't think that the question of whether tea and coffee habits are on the increase or decrease material. The effect of tea and coffee on the human system, I think has some bearing, but whether on the increase or decrease is not material.

BY MR. SIZER.

Q. Now, with respect to the amount, the consumption of tea or coffee, coffee contains caffeine, does it?

A. Yes, sir.

Q. And tea also contains a substance called Thein practically identical with caffeine?

Q. And caffeine taken from tea, or thein, by the analytical process would be the same as caffeine taken from coffee?

A. Yes, sir, if it was purified.

Q. As a matter of fact the caffeine that is described in the Pharmacopeia and the caffeine that is sold commercially is almost universally derived from tea, is it not?

A. I don't think in all instances, but the majority of it is.

Q. Now, Doctor, is it true that the amount of caffeine in an ordinary cup of coffee is from two and a half to three grains.

A. No, sir.

Q. What is it?

A. It is, I should say from one to one and a half grains.

Q. Do you ever drink coffee, Doctor?

A. Yes, sir.

Q. Did you ever undertake to analyze a cup of coffee.

A. No, sir.

Q. Then your testimony as to the caffeine in a cup of coffee is not from any knowledge you have about it?

A. Yes, sir.

Q. How do you know how much caffeine is in a cup of coffee if you never analyzed it?

A. Because I know how much caffeine is in coffee and I know how much coffee goes into a cup of coffee, I mean the average; some like it strong and some drink it weaker, but I think the average is from one to one and a half grains.

Q. Is it a fact that the coffee as ordinarily made and served in first-class hotels and restaurants contains from two to two and a half grains of caffeine?

Mr. Miller: I think that as it is ordinarily sold at first-class hotels and restaurants, draws a distinction that is not warranted.

The Court: Yes.

Mr. Sizer: It is true, as the witness says, it is according to the places where sold, and I want to suggest at the proportion in first-class hotels and restaurants.

Mr. Miller: I think that is going too far.

BY. MR. SIZER.

Q. You say you know the quantity of coffee put in an ordinary cup to make a cup of coffee, how much is that?

A. About a dram, it averages about a dram.

Q. About how much in quantity, suppose you were measuring it out?

A. I think it is about a teaspoonful.

Q. The quantity of caffeine that would be in that teaspoonful of coffee would vary with the kind of coffee?

A. Yes, sir, very much.

Q. And isn't it true that a great many people put more

than a teaspoonful of coffee in order to make a cup?

A. Yes, sir.

Q. And so isn't it true that what the contents of a cup of coffee would be would depend on the taste of different people?

A. A good many put a great deal less than that.

Q. What is the least that you ever knew of any person to use of coffee?

A. I have seen people who only just want to get the water colored, just want to get the flavor of the coffee, and I don't think they would have more than one-eighth of a teaspoonful, or even less.

Q. How was that?

A. I say, I have known people who wanted the water colored and a little flavoring of coffee, and I don't think they would get over one-eighth of a teaspoonful.

Q. Well, that is a very rare thing to find a person that makes it that weak?

A. No, sir, it is getting to be very common among my acquaintances.

Q. You think the majority of people are getting to drink it that way?

A. No, sir, not the majority, but the minority is an increasing one.

Q. You drink it that way?

A. No, sir.

Q. Do you drink it at all?

A. I drink one cup in the morning and then I want it good and strong, I think I get about two and a half grains in mine.

Q. And you have been in the habit of drinking it that way?

A. Yes, sir; I did for nearly a year.

Q. How long ago was that?

A. I should think it was about in 1895.

Q. Now, there are many—I will change that, Doctor. I will ask you how many cups of coffee or how many glasses of this soda fountain mixture containing the coffee extract did you drink at the time you quit the use of it.

A. I took a strong cup of coffee in the morning, and then I would go to a soda fountain when I was near it two or three times a day, and get a glass of coffee soda. I suffered a great deal from headache and took this—I was very nervous and was subject to a great deal of strain—and I took this to enable me to go through with my work, and after I took a cup in the morning I would go ahead with my work.

Q. How many grains of caffeine do you think you had a day under those circumstances?

A. I should think seven or eight a day.

Q. And you kept that up for how long?

A. Well, I could not tell you. I kept it up through one term of work in college, which is about eight months.

Q. That was excessively using caffeine?

A. Yes, sir.

Q. And these deleterious results that you spoke of followed that excessive use?

A. Yes, sir.

Q. In one cup of coffee?

A. Yes, sir.

Q. You drink that every day?

A. Yes, sir, every morning.

Q. And you have been doing that for how long?

A. Well, a good many years.

Q. What is your age?

A. My age is fifty-five.

Q. And you have been drinking it ever since you have been a man?

A. Well, I can remember I began drinking coffee about thirty years ago.

Q. And you do not think now, Doctor, that the coffee that you have drank has produced any deleterious effect on you?

A. No.

Q. If it did you would stop it?

A. It hurt me so much at one time I had to stop it to save my life.

Q. How much were you used to drinking then?

A. A great deal at that time, I would go to soda fountains and take soda water with strong coffee syrup in it.

Q. Then there is a beverage of that kind that is sold extensively at soda fountains?

A. Yes, sir.

Q. A beverage that they put the coffee syrup in?

A. Yes, sir.

Q. And thereupon you moderated your use of caffeine-containing substances and came down to what you think was moderate use?

A. Only a cup for breakfast.

Q. That does not hurt you?

A. No, sir.

Q. You don't think it produces any delcterious result?

A. No, sir.

Q. Now, in addition to the tea and coffee, Doctor, chocolate contains very similar alkaloids?

A. Well, I would like you to define the term "very similar."

Q. Well, it contains some caffeine, does it not?

A. Well, I doubt it.

Q. Do you know whether it does or not?

A No.

Q. It contains also theobromine, does it not?

A. It contains theobromine.

Q. Isn't it a fact that theobromine is almost identical in its constituency with caffeine?

A. Well, I am not speaking as an expert chemist, but I think there is quite a difference.

Q. Do you know how much difference?

The Court: I think we had better limit this investigation to caffeine.

Mr. Sizer: We want to get it in.

The Witness: I know the difference physiologically; I know the different action on the system.

BY MR. SIZER.

Q. What is the diffeeence between the physiological action of caffeine and theobromine?

A. Theobromine acts on the kidneys and has a very slight effect on the nervous system.

Q. Does caffeine act on the kidneys?

A. Yes, sir, but also acts on the nervous system.

Q. Theobromine does it, too?

A A little; not much.

Q. I want to ask you now, Doctor, what was the name of that man in Charleston, that physician, you say got in such a terrible condition.

A. I don't remember his name.

Q. You don't remember his name?

A. No, sir.

Q. In what way was he associated with you?

A. I lived with him.

Q. How do you know the amount of Coca-Cola that he drank a day?

A. I don't know.

Q. You don't know?

A. No, sir.

Q. Doctor, do you know the amount of alcohol he drank in a day?

A. He didn't drink any.

Q. How do you know?

A. Because I would have seen him.

Q. You didn't see him all day long?

A. I wanted to get some whisky one night myself and

he didn't have any, and I had to get some for myself.

Q. But how do you know he had not used up all he had?

A. I knew that he didn't take any alcohol.

Q. You didn't see him take any, you mean?

A. I know he would not.

Q. Isn't it a fact that only the way you know it is you didn't see him take it?

A. No; it is not the only way.

Q. What other way do you know about it?

A. Because when I made my whisky in there—I made up a whisky sour and we talked the matter over and then he said he didn't use alcohol.

Q. He told you he didn't use it?

A. Yes, sir.

Q. And you didn't see him use it?

A. No, sir.

Q. Did he take any morphine?

A. I am very sure he did not.

Q. You did not see him do it?

A. No, sir.

Q. You do not know he did not?

A. Yes, sir, I am sure I do.

Q. How do you know it?

A. Because I know people who take morphine; I can tell it.

Q. Are you a physician?

A. No, but I have had a great deal to do with people who used morphine.

Q. Doctor, the effects you observed on him, were those in any way similar to morphine?

A. Some of them.

Q. If he had the effects from the taking of morphine, how do you know he didn't take it?

A. He said he didn't take it; I said he had some of them.

Q. If he had some of the effects that follow from the taking of morphine, how do you know he didn't take it?

A. Because he didn't have the others.

Q. What others didn't he have?

A. They are hard to describe, but he didn't have the look to his eye that a person using morphine has.

Q. What kind of a look is that?

A. I can't define it but I know it.

Q. Did he take any cocaine?

A. No, sir.

Q. How do you know?

A. Well, I am sure of it.

Q. Isn't it a fact that his condition as you have de-

scribed it here was such as might indicate to you the use of cocaine?

A. No.

Q. Wherein was it different?

A. Well, he didn't have the dilation—that a person has when they take cocaine.

Q. Is that all?

A. Yes, sir.

Q. He had all the other symptoms except that?

A. Yes, sir. I don't think that is quite giving an answer to that question, I don't think I considered it—I don't think it occurred to me—if he had been a victim of the cocaine habit after all I had seen of him it would have occurred to me.

Q. Do you know whether or not he was in the habit of taking strychnine?

A. Yes, sir, he might have been.

Q. You don't know whether he was or not?

A. The effects of that and caffeine are pretty much the same.

Q. How long did you observe him?

A. About two weeks.

Q. Just two weeks?

A. Yes, sir.

Q. How often did you say he would go out in the course of a day and get something to drink?

A. I don't know; I used to see him do it very frequently.

Q. You would not know what he got?

A. Yes, sir, I do; he used to go around the corner and always stopped at the drug store and get his Coca-Cola.

Q. About how many drinks would you think he would take in the course of a day?

A. I have known him to take five.

Q. Five.

A. Yes, sir.

Q. In the course of one day?

A. Yes, sir.

Q. In the course of one day?

A. Yes, sir.

Q. And he drank coffee in addition to that?

A. Yes, sir.

Q. And tea?

A. I don't think he took tea.

Q. Did he take chocolate?

A. No, sir.

Q. Did he smoke?

A. No, sir.

Q. Did he chew tobacco?

A. No, sir.

Q. I believe you stated that you never practiced medicine, did you not, Doctor?

A. No, I did not; I have practiced medicine.

Q. When?

A. Well, I was on the medical staff of the New York Lunatic Asylum for Women for a year.

Q. When was that?

A. That was in 1883 and 1884, I think.

Q. Have you ever had any other experience as a medical practitioner?

A. Oh, yes; when I traveled I practiced medicine.

Q. When you traveled?

A. Yes, sir.

Q. You do not practice at home, then?

A. No, sir.

Q. You only practice when you travel?

A. Well, I don't always practice when I travel, but when I travel, why, I go prepared for it, because there are no physicians in the countries which I travel through, so I practice medicine with those whom I am with. I went one time as physician to an exploring expedition, with fifteen members in the party.

Q. You just practiced, then, on the members of the expedition you may go exploring with?

A. Oh, no. I practice on a great many people who live in communities where there are no physicians and when I go there I would practice medicine.

Q. That is, on the natives of these foreign countries?

A. Well, the natives and foreigners, and on any one who happened to be there.

Q. So it is that your medical practice, aside from what you do casually on these exploring trips, has been confined to that when you were in the lunatic asylum?

A. Yes, sir.

Q. How long have you been examiner of drugs, which I believe you say you are, at the Port of New York?

A. Since, I think, July, 1907.

Q. About three years?

A. Yes, sir.

Q. Your have never dealt in the coca leaves or kola nuts, either as a seller or buyer, except for your own use, have you?

A. Yes, sir; I have bought them by tens of thousands of pounds.

Q. When was that?

A. In 1886, for Parke, Davis & Company.

Q. You bought those where?

A. In the country where they grow.

Q. You were the purchasing agent, then, for Parke, Davis & Co. during those years?

A. For that article.

Q. Now, Doctor, it is a fact, it is not, that coca is really the name of a tree?

A. No, sir; it is not.

Q. It is not so?

A. No, sir.

Q. Do you know what the name coca originally came from?

A. I have forgotten. I have known.

Q. Do you know what the meaning of it is?

A. I have known but I have forgotten.

Q. Does not the word mean "The Divine Plant"?

A. No, sir; that is not the meaning. That is not the translation of the word.

Q. Well, what is the translation of it?

A. I do not know; but it is not that.

Q. How do you know "The Divine Plant" is not the translation of it, then?

A. Well, I know that the name coca is applied to the product and it was given to the tree as the coca tree, the name.

Q. Just answer.

A. The name of the product.

Q. Just answer the question I ask you, Doctor. How do you know, if you don't know the meaning of the word "Coca," that it is not the proper translation of it? How are you able to say that "The Divine Plant" is not the proper translation of it?

A. Well, I think I will take back that statement. I do not think I do positively know.

Q. Yes. You have read the work by Mortimer, have you, on Peru and the history of coca?

A. I helped to write it.

Q. You helped to write it?

A. Yes, sir.

Q. On page 7 of this work the following language occurs:

"During the early age, when this nature's garden was unknown to the rest of the world, the Incas, who were then the dominant people of this portion of the continent, regarded this shrub as 'the divine plant,' so all important and complete in itself, that it was termed simply khoka, meaning the tree, beyond which all other designation was unnecessary. This plant, which has been described under

a variety of names but now known as Coca, has appealed alike to the archaeologist, the botanist, the historian, and traveler as well as to the physician."

Now, you helped Doctor Mortimer write that, you say?

A. Not that part.

Q. You were not responsible for that part of it?

A. No, sir.

Q. You have read the work, have you not?

A. Not all of it.

Q. Did you not read it before it was published?

A. Oh, no. I only was in consultation with Doctor Mortimer. He used to come to me very frequently and we would discuss these things.

Q. You disagree with that statement, then?

A. No, I do not say I disagree with it. I don't know anything about that.

Q. You don't know whether it is true that that tree is known by the name "Coca," or not?

A. I know that it is known as the coca tree, arbol del coca. That is the name of it.

Q. I asked you the question if you knew whether or not that tree is known and was known at the time this book was written as "Coca," meaning the tree.

A. I know it is not. I never heard that name applied to that tree in all the years that I was there. When they spoke of the tree they said arbol, which means tree, del Coca.

Q. I believe I asked you a while ago if you knew the meaning of this word Khoka.

A. No, sir.

Q. You say you do not know?

A. No, sir.

Q. Doctor, I now call your attention to a plate on page 327 of this work by Doctor Mortimer, where appears an illustration of a specimen of coca sent by Jussieu, somebody, some Frenchman. Is that a correct representation of coca?

A. Yes, sir; that is the kind that is in that jar, but it is not the kind that is on this barrel.

Q. That is a tree, is it not, the bush?

A. No, sir, that is a branch of it.

Q. That is a branch of the tree?

A. Yes, sir.

Q. So that the name "Coca" may be properly applied, then, to a branch of the tree, is that so?

A. That part below is wrong. He has given the roots there and it never looks like that at all, but the branch of it is correct.

Q. Now, he applies the name here to the roots, the leaves and the whole tree, does he not?

A. Well, I don't know what he does.

Q. The name Coca appears under that, "Coca," and that is said to be a specimen of coca, is it not?

A. Well, the leaf is there.

Q. So is the tree, is it not?

A. No, sir. The tree is not there. That is a branch that has got no business there.

Q. A branch and flower like that ——

The Court: I think that speaks for itself.

BY MR. SIZER:

Q. I want to ask, may it please your Honor, if this picture might not show just exactly what it did show.

Mr. Cox: He has stated it did not.

The Court: It shows the branch and root.

BY MR. SIZER:

Q. It shows the branch and root and the berry, too, does it not? I want to ask what is this substance that looks like berries or flowers up there among the branches. Are those flowers, or berries of the tree?

A. Those are the flowers; there is no fruit there.

Q. On page 343 of the same work is another cut. What does that represent?

A. That represents a branch of the other kind, the kind that is in that barrel.

Q. The branch of a tree, does it not?

A. Yes, sir.

Q. And it is called what?

A. Type of Bolivian coca.

Q. The term "Coca" is very often applied, now, Doctor, to cocaine, is it not?

A. I never heard so.

Q. You never heard the term "Coca" used as cocaine?

A. Never in my life; no, sir.

Q. Cocaine is one of the alkaloids found in coca leaves, is it not?

A. Yes, sir.

Q. And only one of them?

A. Only one.

Q. There are a number of other constituents in the leaf?

A. Well, I don't know about their being in the leaf, but you get them out. Whether they break down, whether they are broken down products or not I cannot say. I know there is one there present in the leaf.

Q. I want to read you another extract, now, from this publication, Doctor, on page 17:

> "The truth cannot be too forcibly impressed, that cocaine is but one constituent, and no more fully represents Coca than would prussic acid — because found in a minute quantity in the seeds of the peach — represent that luscious fruit. In emphasizing this a recent investigator who passed a long period in the Coca region, studying as a scientist the peculiarities of the plant, and watching as a physician its effect upon native users of the drug, says: 'With certain restrictions it may be said that the properties of cocaine, remarkable as they are, lie in an altogether different direction from those of Coca as it has been reported to us from South America.'"

That is true, is it not?

A. I wrote that, so it must be true.

Q. You wrote that. Well, you admit it to be true?

A. Am I allowed to explain that answer?

The Court: You may make any explanation you want.

A. Well, I want to say that that applies to the leaf in its own home, and I specifically stated elsewhere that it does not apply to the leaf after it reaches this country. It is only before it is dried or shortly after it is dried that this is true of it.

Q. Wherein does it not apply to the leaf, as brought to this country.

A. The leaf as brought to this country does not contain the principle that make those Indians use it, other than the cocaine. That is one of the things.

Q. What is that principle, and how does it get out of the leaf?

A. Simply with the passage of time. If you go to a little store where they sell coca to the Indians who chew it you will not find one bag of coca, but you will find a lot of bags around, and each one of these bags was picked at a certain length of time previously. If it has been picked for two weeks it does not bring as high a price, and if it has been picked for a month it does not bring as high a price, and when you get one where it has been picked for six or eight months they will not use it. You can hardly get rid of it, but it contains the same amount of cocaine then as at first.

Q. What is that particular substance in coca leaves that leaves them in the course of time?

A. Nobody has ever determined.

Q. I want to know if you used this language which appears on page 183: "The qualities of coca are not fully

represented by any one of its alkaloids thus far isolated."

A. I don't know. I think I might have written it because it is perfectly true, but that only applies to coca at home, in its own home. That does not apply to the coca here. I would like to call attention to the fact that I wrote a pamphlet which is entitled "Coca at Home and Abroad," and in that pamphlet I set forth these facts, and this author has copied from one part of that, the part that relates to coca at home and not that which relates to coca here.

Q. You do not pretend that coca, even as brought to this county, is represented only by the cocaine; that is, that the cocaine represents all the qualities of the coca leaf?

A. Practically all; yes, sir.

Q. You have said there are a number of other alkaloids in it.

A. Yes; but they act very much the same as cocaine.

Q. I know, but those that are alkaloids have their own effect, independent of caffeine?

A. Oh, yes, sir; there is some difference.

Q. Are there any aromatics in it?

A. Yes, sir; a little, but not enough to have any medical effect. There is just a trace of volatile oil.

Q. There are some in there that could be extracted out?

A. Yes, sir.

Q. I want to ask just one question. You say caffeine is a drug, Doctor?

A. Yes.

Q. It is much more excessively used as a food than as a drug, is it not?

A. I do not hold that caffeine is a food in any sense of the term. The substance in coffee taken with a meal, in that sense it is used as a food, but caffeine itself I do not think is a food.

Q. Caffeine, however, is taken in food products much more extensively than it is used as a drug, is it not?

A. Every time.

Q. And a great many substances may be drugs or food, according to the manner in which they are used?

A. Yes, sir.

Q. For instance, salt is a drug, is it not?

A. Salt is a drug; yes, sir.

Q. But it is much more commonly used as a food?

A. Yes, sir.

Q. And honey—

The Court: Well, that is a sufficient illustration.

BY MR. SIZER.

Q. I want to know now how many different plants, Doctor, do you know of which contain caffeine?

A. I do not think I could do any more than approximate that.

Q. Well, give all you know.

A. I should think about a dozen.

Q. I want to get the names of them, Doctor.

A. Oh, well—then we will take—do you want the botanical names?

Q. Give the plain, common, every-day names.

A. We will begin with two kinds of coffee. That is, two different species of coffee, the Arabian coffee and the Liberian coffee. Tea, — Guarana, Paraguay tea, Ilex vomitoria,—which grows right down here on this Atlantic Coast.

Q. What they call Appalachian tea, is it?

A. I never heard it called that; no, sir. I think that is Ceanothus—I would not be sure, though. I do not think it is. Then we get about five species of kola, of which two are commonly in use, but there are three others which contain it and are not in common use. That is all I think of just now.

Q. I asked you a while ago about whether commercial caffeine, or caffeine as described in the Pharmacopoeia is not made from tea leaves; what do you say about that?

A. Well, I think you asked me if it was not almost universally made from tea leaves and I said no, most of it was made from tea.

Q. Is it not a fact that caffeine is described in the Pharmacopoeia as being obtained from tea leaves?

A. That is only one of the sources. It has numerous other sources, too.

Q. That is the first one?

A. It is obtained from coffee, or from tea, or obtainable from other plants.

REDIRECT EXAMINATION, BY MR. MILLER.

Q. Doctor Rusby, turning first to this illustration which your attention was called to on cross-examination on page 237, in Mr. Mortimer's book, I will ask you whether or not you find the leaf as well as the plant shown there.

A. I find a branch which has leaves and flowers on it, and then I find down at the bottom of the page a lot of leaves themselves in different sizes, and showing two sides of the leaf, and I take it that the leaf is the thing that is referred to, and the branch—

Mr. Sizer: I object to that.

The Court: The exception is sustained.

BY MR. MILLER.

Q. Now, then, turn to page 343 and state if likewise the leaf is shown in that illustration as well.

A. The leaf is shown there also.

Q. Now, this treatise to which adverse counsel has called your attention is, I notice, dedicated to "Angelo Mariani, Paris, France, a recognized exponent of the 'Divine Plant' and the first to render Coca available to the world." State whether or not this Angelo Mariani that wrote so much about it was the man that put on the market this product known as Vin Mariani, or Wine of Mariani, which the Government confiscated for adulteration because it contained cocaine.

Mr. Sizer: I object to that, your Honor.

The Court: The exception is sustained.

BY MR. MILLER.

Q. Now, adverse counsel read from page 18 with respect to coca leaves. On page 17 I find this statement in this book:

"Because of this ignorance of certain investigators the historical accounts of the use of Coca and its sustaining qualtities among the natives, have been set down to exaggeration or absolute fabrication."

Now, do the natives use anything else that comes from that growth down there except this leaf that you talked about?

A. Absolutely nothing but that leaf, just as you see it there.

Q. Just as you see it in this jar before us?

A. Except that it is fresher.

Q. So that is the coca that they use down there?

A. The coca that is used is the leaf.

Q. Then, following, that at the bottom of page 17 and the top of page 18, is this statement:

"Then as though forgetful of all preceding investigation or condemnation, a renewed discussion commenced regarding the asserted qualities of coca, the failure to realize them and the probable source of the potency of the plant as represented by cocaine."

Now, state whether or not the cocaine that was found in the coca leaf, when it is consumed or chewed by the natives down there, gives this apparent increase of muscular and physical activity.

A. Not alone. It does not do it if you take the cocaine alone.

Q. Will cocaine do it to any extent?

A. Yes, it will do it to some extent.

Q. Now, on page 19 there is this statement:

"The theory has been advanced that because cocaine is one of the chief alkaloids of coca, it represents whatever sustaining quality the leaf can possibly have the manufacturers base their choice of leaves upon the percentage of cocaine determined by assay. But this is not in unanimity with the selection of the native users of coca,"—

A. (Interrupting) That is true.

Q. (Continuing) "any more than would be the quality of a choice tobacco leaf be governed by the amount of nicotine it contains."

A. Yes, sir. I can say about that that I have gone to one of these places where it was sold and I have taken the different coca leaves at different prices. One-half of it was so old the people would not take it. I have made assays of these and they contained the same amount of cocaine, approximately.

Q. "The fact is the Andean Indians select coca that is rich in the more volatile associate alkaloids and low in cocaine.

A. I don't know that; I think the amount of cocaine is generally just about the same.

Q. Well, then, state whether or not in conclusion it is a fact that the leaf, and the leaf only, is the only product of this plant that is bought and sold as coca.

A. It is.

Mr. Sizer: I object, may it please your Honor, to his asking that question.

The Court: The exception is sustained. The ground of sustaining the exception is that he has already testified to it.

BY MR. MILLER.

Q. Now, on cross-examination you referred to some connection you had with a lunatic asylum. What was your connection with that, Doctor? What length of time have you had connection with such inmates of the lunatic asylum and under what conditions?

A. I was there for one—

Mr. Sizer: Read that question.

(Thereupon, at the request of counsel, the stenographer read the pending question.)

A. I was there for one year and it was my particular business during that year to ascertain and enter in the proper books the causes which led to the insanity of the patients, and I devoted the whole year to that work. That

was not the only thing I did, but that was my principal duty. I was given charge of that work.

BY MR. MILLER.

Q. Were you one of the directors of the asylum or are you now a director in a lunatic asylum?

A. No, sir.

Q. Have you been at any time?

A. No, sir.

Q. As I understood you, if I understood you correctly, you stated that the effects of strychnine and caffeine on the human system were very similar.

A. Yes, sir.

Q. What are effects of strychnine on the human system?

A. Strychnine?

The Court: I don't think we need to go into that.

Mr. Miller: We must most respectfully except.

The Court: We will confine ourselves to the effect of caffeine. If strychnine is similar, that is immaterial.

BY MR. MILLER.

Q. State whether or not strychnine is generally and well recognized as a poisonous drug.

A. It is.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. I understand, Doctor, that you are in the employ now of the national Government at the Port of New York.

A. Yes, sir.

Q. And have been since how long?

A. Since 1907. I think it is 1907.

REDIRECT-EXAMINATION, BY MR. MILLER.

Q. What other duties have you? Do you give your time exclusively to that, to the governmental duties? If not, what other duties do you have?

A. No, sir; whenever there is a drug which comes to that port and the quality or identity of it is in question, it is referred to me for decision.

Q. What are your other duties at the present time?

A. Oh,—I am the dean and professor of Materia Medica in the College of Pharmacy.

Q. The College of Pharmacy of New York, I believe you said.

A. Yes, sir.

Q. Does that require the principal portion of your time?

A. Oh, yes.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. You speak of being dean of the chair of Materia Medica?

A. I did not say that; I beg your pardon. I said dean of the college and professor of Materia Medica.

Q. Now, Materia Medica is confined to the description of the drugs and their pharmaceutical section or pharmacological action?

A. No, sir. It takes up their pharmacological action and their therapeutic properties.

Q. You treat of the whole subject?

A. The whole subject, the action on the system and doses.

(Witness excused.)

E. A. RUDDIMAN,

of lawful age, was produced as a witness on behalf of the Government and having been first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Professor Ruddiman, what is your age?

A. Forty-six.

Q. Where do you reside?

A. Nashville, Tennessee.

Q. In what are you engaged at the present time?

A. My chief occupation is professor of Pharmacy in the department of Pharmacy, Vanderbilt University.

Q. How long have you been connected with Vanderbilt University at Nashville?

A. Since September, 1890; a little over twenty years.

Q. What has been your professional connection with that institution from 1890 up to the present time?

A. I have held the chair of Pharmacy and Materia Medica in the Department of Pharmacy, and part of the time the lectures on pharmacy in the Medical Department.

Q. State whether or not you are acquainted with a substance that is known as coca, and also one that is known as kola.

A. I am.

Q. What is this substance that is known as coca? Is it a food or a drug?

A. A drug.

Q. And what are its effects, when taken into the human system?

A. I don't know as I am qualified to answer that question. I have not given it particular attention.

Q. Can you give us some of the known observable, more

marked effects of the chief active ingredient of that drug?

Mr. Sizer: I object to that, your Honor. The witness says he is not qualified.

The Court: The exception is sustained.

BY MR. MILLER.

Q. State whether or not you are a chemist, Doctor.

A. I am.

Q. What experience have you had as a chemist?

A. Since about 1897 I have been chemist for the Board of Pharmacy, at the Tennessee State Board of Pharmacy, and for perhaps three or four years I have been one of the chemists in the employ of the Bureau of Chemistry.

Q. That is which Bureau of Chemistry?

A. The Department of Agriculture.

Q. Your reside at Nashville?

A. Yes, sir.

Q. Now, state what this substance coca is. You say you are acquainted with it; just describe it.

A. It is a leaf.

Q. State whether or not the leaf of this plant is generally bought and sold and referred to under the name "Coca."

A. It is.

Q. As the leaves come into this country, are they usually dried or in a green state?

A. Usually dried.

Q. Examine the exhibit shown you, filed as exhibit to Dr. Fuller's testimony.

The Court: Is there any dispute that that represents the coca leaf?

Mr. Sizer: No, we do not deny that. We take it that it is.

The Court: As that is not disputed you may omit that.

Mr. Miller: This is the only witness I expect to call on that point but I withdraw the question.

BY MR. MILLER.

Q. State whether or not this leaf is bought and sold under any other name except that of "Coca," to your knowledge.

A. No, sir.

Q. Is there any other substance or product that is bought and sold under the name "Coca," except the leaf of this plant?

A. Not that I know of. Not that is recognized by the Pharmacopeia.

Q. Now, as to kola. What is generally and ordinarily

understood by the term "Kola," when that term is used?

A. It is generally known, or at least the synonym is the kola nut, but more properly the seed.

Q. And do you know what the chief active principle of kola is?

A. Caffeine.

Q. And what is the chief active principal of coca?

A. Cocaine.

CROSS-EXAMINATION, BY MR. SIZER:

Q. Doctor, did you ever deal in coca leaves or kola nuts?

A. No, not any further than to buy them for use in the college there.

Q. And so when you speak of the names under which they are generally bought and sold commercially, you refer simply to your experience when you go and buy them for use in the college?

A. Why, I look over the price lists and in that way know how they are generally termed, in common.

Q. Don't you know, Doctor, that a great many of those price lists describe the leaves of the coca tree as coca leaves?

A. Not to my knowledge.

Q. You never saw a price list that priced coca leaves?

A. I didn't say that.

Q. Well, I am asking you now,—did you?

A. I don't remember whether I have noticed that synonym or not.

Q. Now, what particular price list do you recall? Describe the coca leaves under the name of "Coca," alone, without the use of the word "Leaves"?

A. I don't know that I could call any specific price list.

Q. What particular price list can you refer to that describes kola nuts under the name "Kola," alone, without the use of the word "Nuts"?

A. I don't know that I could name any specific list there now.

Q. How long has it been since you bought any coca leaves or kola nuts?

A. Probably two or three years.

Q. How often do you have occasion to buy them?

A. About every second year, usually.

Q. Do you recall whether, the last time you went to buy coca leaves, you called for coca or coca leaves?

A. I called for coca.

Q. How can you remember that?

A. Because I never use that term "coca leaves."

Q. Now, Doctor, it is not a fact that if a man would go into an ordinary drugstore and call for coca that they would give him the powdered paste of the chocolate bean?

A. No, sir.

Q. If not that, what is commonly called cocoa.

A. That is a different product that you refer to, sir.

Q. I know it is a different product but I ask you if it is not known and commonly called cocoa.

A. Not as a drug; no, sir.

Q. I didn't ask you that, Doctor. Is it or not known and commonly called cocoa.

A. In a drugstore?

A. Anywhere, in a grocery store or anywhere else.

A. That depends on what the customer wants.

Q. Yes. If a man wanted this powdered paste of the chocolate bean, and was going to a drugstore for it, he would call for cocoa, would he not?

A. Why (at the soda fount, if he—

Q. I am not asking you about a soda fountain. I am asking you if he were to go into a drugstore and call for it, if he would not call for cocoa?

Mr. Miller: I submit that is quite argumentative and also speculative. The witness does not know what a man would do.

The Court: The exception is overruled.

The Witness: In a drugstore, do I understand?

BY MR. SIZER:

Q. I am asking you about a grocery store, Doctor.

A. Well, grocery stores do not handle coca.

Q. A grocery store does not handle cocoa?

A. The drug, coca.

Q. I am asking you about the drug, coca. Now, I am asking you about this chocolate paste, that is I am not asking you about the drug coca, now. I am asking you about this chocolate coca fill.

A. Yes, if he wanted that.

Q. They have a chocolate substance they put up in cans and call coca?

A. It is spelled differently.

Q. I didn't ask you how it was spelled. I asked you if they did not call it coca.

A. Yes, sir.

Q. That is the way it is generally known and called for?

A. Yes, sir.

Q. That is spelled, now, cocoa, generally, or sometimes cacao.

A. Yes, sir.

Q. Cola nuts are generally spelled in the price list "kola," are they not?

A. I could not say, K or C.

Q. They are quite commonly spelled kola, are they not?

A. Yes, sir.

REDIRECT-EXAMINATION, BY MR. MILLER:

Q. Look at the spelling on this keg, Doctor, that has been introduced in evidence as an exhibit and at the word "cola" as spelled thereon, and the word "coca" as spelled thereon, and then state whether or not that is the substance that is sold in the grocery store, about which adverse counsel examined you?

A. It is not.

Q. How do you spell that substance that they sell in the grocery store?

A. Cocoa, or cacao.

Q. That is what we drink sometimes as cocoa, that is c-o-c-o-a.

A. Yes, sir.

Q. Now, when we call for coca as it is spelled on this keg, what do you get and what is generally bought and sold in the market?

Mr. Sizer: I object, your Honor. He has asked him that question on examination in chief, and it is not rebuttal.

Mr. Miller: I respectfully show to your Honor that no question of spelling arose until Mr. Sizer got into this case and began to teach us orthography.

The Court: I do not think that question is fully developed by his examination before. You may ask him the question. The exception is overruled.

(Thereupon at the court and counsel, the stenographer read the pending question.)

BY MR. MILLER:

Q. State how that is.

A. The drug.

Q. State whether or not there is a sample of that in this jar that has been previously filled as an exhibit.

A. I should judge so.

Q. State whether or not that is the drug in which you state the active principle was cocaine, or coca leaves.

A. It is coca.

RECROSS-EXAMINATION, BY MR. SIZER.

Q. And when you say, Doctor, that substance is gen-

erally known and sold under a certain name, your only knowledge as to the manner in which it is generally known and sold, consists in the fact that you bought some of it two years ago?

A. Not only in that.

Q. And the fact that price lists you say call it coca?

A. The books in general call it coca.

Q. What books in general do you refer to that call it Coca.

A. The Pharmacopeia.

Q. What else?

A. The Dispensatories.

Q. What else?

A. The various Materia Medicas.

Q. They do not describe the manner in which drugs are bought and sold, do they? They simply give the technical name of the drug, do they not?

A. They give a description of the drug.

Q. Give the description and technical name of it is that not so?

A. Yes, sir.

Q. Then, to get facts, so far as you know, the actual buying and selling of this substance in drugstores or other places is concerned, your knowledge is confined to your personal experience with it, is it not?

A. I do not quite catch that.

Q. You never heard any other man go and buy coca leaves or cola nuts from a drug store, did you?

A. I am not testifying that as the—

Q. Do you know or ever recall it?

Mr. Miller: Please let him answer the question.

The Witness. I was going to say not calling for that as the coca leaves and cola nut.

BY MR. SIZER:

Q. Do you recall ever hearing another man than yourself go into a drug store to buy coca leaves or cola nuts?

A. Not as leaves and nuts.

Q. I did not ask you how they bought them, Doctor. Do you recall ever seeing or hearing or knowing of another man—

A. (Interrupting) —No.

Q. Buying either coca leaves or cola nuts?

A. I do not.

Q. So then your knowledge as to the actual buying and selling is confined, as I say, to your personal experience, is it not?

A. I think not. I have knowledge from other sources.

Q. Well, leaving out the books and price lists that you refer to, I am speaking now of your experience of the actual buying and selling. That is confined to your personal experience, is it not, your personal buying and selling?

A. Yes, so far as buying is concerned.

Q. And it has been two years since you have bought any?

A. No. I don't know. I may have bought some last year. I buy goods in the summer, and I don't remember whether I got my store or not.

Q. Didn't you state on your original cross examination that it has been two years since you bought any? That is coca leaves and cola nuts?

A. I think I might have done that.

Q. Do you say now that you have bought any coca leaves or cola nuts within two years?

A. I cannot state positively because I have no—

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. And if you did, why you bought them under the name of coca and cola?

A. I did.

Mr. Miller: That is all.

Mr. Sizer: I object, your Honor.

The Court: He withdraws the question.

Mr. Miller: I do not.

The Court: I understood you to withdraw it. The witness did not answer, and I sustain the exception. The witness has testified fully on that subject.

(Witness excused.)

F. P. MORGAN,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER:

Q. Dr. Morgan, how old are you?

A. Forty-three.

Q. And what is your profession, or avocation?

A. I am a physician in the employ of the Department of Agriculture at Washington.

Q. How long have you been connected with the Department?

A. Since October 15th, 1907.

Q. Are you a graduate of medicine of any school, or medical institution? If so, what?

A. I graduated from the College of Physicians and Surgeons of New York in 1893.

Q. Have you practiced any as a practicioner of medicine?

A. I practiced medicine until October 15th, 1907, in Washington, D. C., when I accepted my present position with the Department of Agriculture.

Q. In what particular practice were you engaged?

A. General practice.

Q. I did not quite catch where you said you were educated.

A. The College of Physicians and Surgeons, in New York City.

Q. Were you or not in school at Harvard University?

A. Yes, I graduated from Harvard in 1890, that is the Academic Department.

Q. What degree did you take in Harvard College?

A. B. A.

Q. Are you a licensed practicioner of medicine?

A. Yes, sir.

Q. What is the nature of your work now at the Bureau of Chemistry at Washington?

A. The examination of drug products from the standpoint of the physician and such other duties as may be assigned to me.

Q. Do you belong to any recognized medical societies, and if so, what?

A. I belong to the medical society of the District of Columbia, and the American Therapeutic Society.

Q. Now, I will get you to state whether or not you are acquainted with the substance called caffeine?

A. Yes, sir.

Q. And state whether or not you have ever conducted any experiments in animal experimentation with caffeine.

A. Yes, sir, I have conducted experiments with caffeine.

Q. State if you have ever conducted any experiments with coca-cola syrup.

A. Yes, sir, I have.

Q. As prepared by the Coca-Cola Company of Atlanta?

A. Yes, sir.

Q. Now, when did you begin to conduct these experiments?

A. 1908.

Q. And on what species of animals did you conduct them?

A. On rabbits.

Q. Where did you obtain these rabbits?

A. The rabbits were obtained in the regular course by

the Bureau of Animal Industry in 1908; and in 1909 for the Bureau of Chemistry.

Q. Where are those Beaureaus located?

A. Washington.

Q. And did you experiment on any other forms of animal life except rabbits?

A. Not upon other animals, no; experimented upon man.

Q. Did you conduct any experiments on guinea pigs or anything of that kind?

A. No, sir.

Q. Did any one assist you in conducting these experiments?

A. I had the advice of others but I did the experimenting myself. During my absence from the city at one time I was assisted by another party who fed the animals for me. That was for a short time, I believe about ten days.

Q. Who was it that assisted you, Doctor?

A. Dr. Kebler.

Q. Is that L. F. Kebler who is here present?

A. Yes, sir.

Q. Where were these experiments of yours conducted?

A. The 1908 experiments were conducted in the Bureau of Animal Industry Building adjoining the Bureau of Chemistry, and those in 1910 and 1911 were performed in the Bureau of Chemistry.

Q. Had you had any other experience in pharmacology except that which resulted from this experimentation?

A. I did some experiments in 1895 and 1896. That was to determine the physiological action of the alkaloids of a drug or substance called mescal, mescal buttons. Those experiments were upon men anl also upon lower animals.

Q. Are you connected with any Institution?

A. I have given instruction in the George Washington University at Washington in the Medical Department, the Department of Materia Medica an Therapeutics. I was not a professor but an instructor.

Q. What was the object of these experimentations on rabbits that you conducted with caffeine and Coca-Cola, Coca-Cola syrup?

A. The object was to determine the effects of these substances upon those animals, upon their welfare, and so forth; upon their health.

Q. State in a general way how these experiments were conducted on rabbits?

A. Rabbits, healthy so far as could be ascertained, were secured, and they were kept under uniform conditions, so

for as was possible, throughout the experiments, that is as regards air, and light and water and food and care. They were observed at regular intervals during the course of the experiments and before the experiments were begun they were weighed for a certain number of days until they were found to be or proven or shown to be in normal, healthy condition. They were then fed with the substances with which I experimented.

Q. Did you during that time do any feeding with what has been described here as Merchandise No. 5?

A. Yes, sir.

Q. That goes into this Coca-Cola mixture?

A. Yes, sir.

Q. Well, take up the beginning of your experimentation in 1908. I will ask you first whether or not you experimented on any rabbits by giving them water alone and without giving them either Merchandise No. 5 or Coca-Cola syrup, or caffeine in any form.

A. Yes, sir. Two rabbits were given water only, daily, for a certain number of days or length of time, in order to determine whether or not water alone, or liquid, if introduced into the stomach of a rabbit regularly day after day, would of itself produce a change in their weight and gen-condition.

Q. What quantity of water was given these rabbits?

A. One rabbit was given 40 cc, which is an ounce and a third, and the other was given 30cc each time, or one ounce.

Q. In giving the results of your experiments, from time to time instead of using the cc for cubic centimeters, kindly give us the amount of it in grains or ounces, if you have it in notes, you may refresh yourself from them.

The Court: Were they given regular food in the meantime?

The Witness: Yes, sir.

Mr. Miller: Yes, I was just going to ask him that your Honor.

BY MR. MILLER:

Q. Now, what kind of food was given to those rabbits?

A. The rabbits were fed on oats and cabbage. They had oats in their cages all the time. That is to say, it was kept constantly supplied. That is, I believe, customary. The cabbage was given to them every other day. That is in order to give them a small quantity of green food. The feeding was kept uniform during the time they were under the experiment.

Q. Those rabbits that were thus kept supplied with this

food as you have described, were given this quantity of water that you have stated—tell us whether or not they improved or were injured or affected as the result of giving the water alone.

A. These rabbits, the two rabbits, gained in weight. One of them gained 6.4 per cent of its body weight and the other gained 3 per cent. The experiment was kept up in one case from May 14th to June 11th, and the other from March 6th to May 9th, sixty-three days I believe in the last case, and about 40 or something like that, in the first case. I have not the exact figures.

Q. Did you experiment on any rabbits during the year 1908 with this Mer. No. 5?

A. Yes, sir.

The Court: It is now about twelve o'clock and we will take a fifteen-minute recess.

AFTER RECESS:

At twelve-fifteen o'clock P. M., the court met pursuant to the taking of recess.

F. P. Morgan resumed the stand for further

DIRECT EXAMINATION, BY MR. MILLER:

Q. Dr. Morgan, have you a chart in your possession that you have prepared that will show the relative gain of body weight of animals that were experimented on with water alone, receiving their normal amount of food, sunshine and air? If you have, I will ask you to file it as Exhibit One.

A. Yes, sir, I have such a chart.

Mr. Sizer: We object to it, your Honor.

The Court: (after examinging chart) The exception is overruled.

Mr. Sizer: I thought you ask him for statistics.

Mr. Miller: I asked him if he had a chart showing the comparative increase or decrease in the weights of the rabbits that were fed on water.

BY MR. MILLER:

Q. I will ask you to file that as Ex. No. 1, and then explain to the jury the chart.

A. This chart is drawn for the purpose of showing the relative gain in weight of these rabits, which were fed merely with water once a day. The black line in all of these charts alike, represents the weight of the rabbit at the beginning of the experiment, and any rise above that line indicates a gain in weight, and any line drawn below

indicates a loss of weight, and above here (indicating on chart) we have the number of days shown, and here the relative weights, so that the rapidity of the rise or fall, indicates the rapidity of the loss of weight of that particular animal.

Now, in this experiment, the water was given to two rabbits, as explained, and it will be noticed that the lines rise from this base line, indicating gain in weight of these two rabbits. One rabbit gained 115 grammes in thirty days.

Q. What percentage was that? The jury do not compute grammes. What percentage of body weight?

A. The percentage of body weight is 6.4 per cent. in this and 3 per cent. in this (indicating).

Q. That is in the lower line?

A. Yes. The experiment was continued for thirty days in one case and sixty-three days in the other, and then it was considered to be satisfactory, or conclusive, and it was discontinued at that point.

Q. I will ask you to file that chart as Ex. No. 1 to your evidence, and it will be so marked by the stenographer.

Mr. Sizer: We object, your Honor, to the introduction of those charts.

The Court: The exception will be noted and overruled.

(The chart referred to is filed herewith and made a part of this record, marked Ex. Morgan No. 1.

CROSS EXAMINATION, BY MR. SIZER:

Q. How much water were these rabbits given that were given water alone during the 1908 experiments and received the normal amount of food, air, and sunshine?

A. One of them received an ounce and third and the other an ounce.

Q. Now, coming to those that were fed this Mer. No. 5, on how many rabbits did you conduct that experiment?

A. Two rabbits.

Q. And when was that?

A. That was in 1908. I have the exact date, but I believe it was in 1908.

Q. Did those rabbits that were fed Mer. No. 5 receive the same or relatively the same amount of food, air, and sunshine, and were they treated like the rabbits that had received only the water, and under the same conditions?

A. Yes, sir. They were under exactly the same conditions and had the same treatment precisely. The rabbits were all attended to keepers whose business, so far as I know, was to look after them.

Mr. Sizer: We object, may it please your Honor, to the

testimony of the witness as to what the keepers did or did not do.

The Court: I do not understand the point of the exception as applied to the witness's answer. Just note the part of the answer that you object to.

Mr. Sizer: He answers that the rabbits were fed in a certain way by certain attendants whose duties were to look after them, I believe, some to that effect.

Gen. Cox: He states that as a fact.

Mr. Sizer: I am objecting to his statement as to what the keeper did, so far as he knew, he said.

Gen. Cox: Suppose he saw it, he knew they did it.

The Witness: To look after them only was what I meant to say.

Mr. Sizer: I object to his statement that the duties of the keeper, so far as he knew, was to look after the rabbits.

The Court: What is the ground of the objection?

Mr. Sizer: The ground of the objection is that it is incompetent for him to testify as to what the keeper did, based on mere supposition. He said "so far as he knew."

The witness: Your Honor, may I make an explanation?

The Court: I will sustain the exception, on the ground it does not appear that he knew it.

BY MR. MILLER:

Q. Just state, then, in that respect, what was the duty of these keepers, and what you did, whether or not it was done under your supervision, Dr. Morgan.

A. Yes. They were hired for the purpose of looking after these animals. They also undoubtedly had other duties to perform, but their first and principal duty was to look after these animals.

Q. Were these animals kept under your supervision?

A. Yes, sir.

Q. Did you or not have occasion daily to see these particular animals?

A. Yes, sir.

Q. Did you or not have occasion to observe whether or not they received the requisite amount of food, or air, and of sunshine that were received by the rabbits that were given this quantity of water about which you have testified?

A. Yes, sir.

Q. I will ask you whether or not, those conditions with respect to air, food and sunshine, were substantially the same?

A. Yes, sir.

Q. On how many rabbits did you say, or did you say,

was this experiment with Mer. No. 5 conducted?

A. Two rabbits.

Q. How much were these rabbits given of Mer. No. 5?

A. One ounce daily.

Q. And how long were those experiments conducted on those two rabbits with Mer. No. 5?

A. They were conducted for sixty-nine days, when the experiment was discontinued.

Q. What was the result as respects increase or decrease of body weight during that period of time?

A. There was a decrease of body weight; a slight decrease.

Q. Of what percentage?

A. 5.9 per cent. on an average between the two rabbits.

Q. Have you or not a chart showing the normal body weight and also showing the decrease of body weight on these particular rabbits, and, if so, you have, I will ask you to file it as Ex. No. 2 to your testimony, and exhibit it to the jury.

A. Yes, sir; I have such a chart.

Q. Just please produce it and let the stenographer mark it No. 2 and show it to the jury.

The Court: I do not see how that will add anything as to the increase or decrease in the body weight. I will sustain the exception. If I thought it added anything or made it any clearer I would admit them, but I do not see that it does. The fact that we get the primal fact that they did gain or lose body weight is sufficient.

Mr. Miller. These charts are made from notes, and are a summary of notes which would require very much more time, perhaps, if the witness were required to refer to the notes instead of the charts.

The Court: He can state the results, whether there was a gain or decrease in body weight, and the percentage during that time, and that is the only essential fact.

Mr. Miller: We respectfully except to the ruling.

The Court: It may be noted

BY MR. MILLER:

Q. Did you conduct any experiments with Merchandise No. 5, plus one grain of caffeine, daily?

A. Yes, sir.

Q. With rabbits during the year 1908?

A. Yes, sir.

Q. By the way, I should have asked you what quantity of this Merchandise No. 5 is given to these rabbits in 1908. First, Merchandise No. 5 alone.

A. One ounce daily. When I say "daily" in 1908, I

mean daily excluding Sundays and holidays, official days. When I say daily hereafter in relation to the other experiments of 1910 and 1911, I refer to holidays and Sundays, inclusive.

Q. If I understand you, in 1908, as to all animals experimented on during that time that excluded holidays and Sundays.

A. That is to say, when I say daily I do not mean Sundays and holidays.

Q. How many rabbits were experimented on with the Merchandise No. 5 plus one ounce of caffeine during the year 1908? I mean, one grain.

A. Three rabbits.

Q. For what number of days was that experiment conducted?

A. In the case of one rabbit it was continued for 114 days, when the experiment was discontinued. In the case of another rabbit the rabbit died at the end of 19 days, and in the case of the third rabbit the death came at the end of sixty days, making an average of 64.3 days that the rabbits lived.

Q. State whether or not there was an increase or decrease in body weight during that time, as compared with the rabbit in its normal condition.

A. There was a decrease in body weight. The weight declined.

Q. Were those rabbits weighed at the outset, when they began to experiment on them?

A. Yes, sir.

Q. State whether or not those rabbits were kept under your supervision, and received the usual amount of food, air and sunshine that was given to the other rabbits that you have testified about.

A. Yes, sir.

Q. I will get you to state whether or not any autopsy was held on these rabbits that were given the Merchandise No. 5 with one grain of caffeine per ounce daily, and if so, who conducted the autopsies.

A. The autopsies were performed in each case, the autopsies in two of the cases being conducted by members of the Bureau of Animal Industry; one by Dr. Formad of the Bureau of Animal Industry, and the other by Dr. Eichorn of the Bureau of Animal Industry, and the other by a member of the Bureau of Animal Industry whose name I find I did not put down in my book.

Q. Did you or not observe the autopsies as they were conducted?

A. Yes, sir; I was present and took notes at the time.

Q. Have you those notes here with you?

A. Yes, sir.

Q. Tell us what the autopsies showed, with respect to the intestinal tract of the intestines, the interior of the rabbits, in a general way.

A. All three of the rabbits showed inflammation of the stomach or intestines, or both. That is to say, the alimentary tracts showed lesions in case of all three rabbits.

Q. Had these rabbits been given any other substance except this Merchandise No. 5 plus the one grain of caffeine daily, barring their normal food?

A. No, sir.

Q. Did you, during the year 1908, conduct any experiments with the Coca-Cola syrup?

A. Yes, sir.

Q. On rabbits?

A. Yes, sir.

Q. How much of the Coca-Cola syrup was given to the rabbits and over what period?

A. Two-thirds of an ounce was given them, one-third of an ounce of water as a diluent daily to two rabbits.

Q. And what was the result as respects the body weight?

A. The body weight of these rabbits declined.

Q. To what extent?

A. Upon the average, 19.7. The loss of weight was 19.7 per cent.

Q. Were these rabbits kept under like conditions as those you have previously referred to?

A. Yes, sir.

Q. Now state whether or not any autopsy was performed on those rabbits.

A. Yes, sir, an autopsy was performed on both of them, at the Bureau of Animal Industry.

Q. Did those rabbits live or die naturally, a natural death?

A. One of them lived and the other died. The experiment in the case of one of them was discontinued at the end of six months.

Q. State whether or not any autopsy was held or conducted on those rabbits.

A. Yes, sir.

Q. Tell us briefly what an autopsy is, Doctor.

A. A post mortem examination to determine, as far as is possible, the departures from the normal, after death.

Q. That is the changes from the normal condition?

A. Yes, sir; the changes which have taken place.

Q. I will get you to state if you were present at the au-

topsies that were held on those rabbits that were fed on the two-thirds of an ounce, with one-third of an ounce of water, two-thirds of an ounce of Coca-Cola syrup, and one ounce of water daily in 1908.

A. Yes, sir.

Q. State what the autopsy revealed as to the stomachs of those rabbits.

A. It showed signs of thickening and chronic inflammation, in one; and sub-acute inflammation in the other.

Q. What do you mean by sub-acute inflammation?

A. An acute inflammation is one which is sharp and of short duration, and sub-acute is one which is more prolonged; one that is still further prolonged would be called chronic.

Q. You say the stomach was much thickened in one of them?

A. Yes, sir.

Q. You mean as compared with the stomach of a normal rabbit?

A. Yes, sir.

Q. What if anything did that indicate as to the effect of the Coca-Cola syrup?

A. I was unable to draw any definite conclusions in that regard.

Q. Now, did you feed any other rabbits during the year 1908 with Coca-Cola, and, if so, what quantity of the syrup did you give them?

A. I fed four rabbits in 1908 with Coca-Cola syrup, using an ounce of the syrup and one-third of an ounce of water as a diluent. This was given to four rabbits daily, as I have before explained, and the loss of weight was, on the average, 363.7 grams or 21.4 per cent. of the body weight.

Q. Was there or not in case of these feedings of the Coca-Cola syrup, a decline in body weight?

A. Yes, sir.

Q. Of all the animals fed?

A. There was; yes, sir.

Q. Were there any autopsies held on this last number of rabbits, four rabbits that you have referred to?

A. Yes, sir; autopsies performed in the case of each one.

Q. And were you present at those autopsies?

A. Yes, sir.

Q. Who performed the autopsies there?

A. The autopsy was performed in the case of one rabbit, by Doctor Eichorn, of the Bureau of Animal Industry, and in the next case by a member of the Bureau of Animal

Industry whose name I did not write down at the time, and, third, by Dr. Washburn of the Bureau of Animal Industry, and the fourth by myself.

Q. Who performed that autopsy on the rabbits you previously testified about—those two?

A. In the case of the two rabbits both autopsies were performed by members of the Bureau of Animal Industry, and one of them was Dr. Formad. The other I did not note down at the time.

Q. Did those last four rabbits die or were they killed at the expiration of a certain time?

A. They all died.

Q. How long did they live, Doctor?

A. One of them lived seventy-five days; one lived eighteen days; another eight days, and another 38 days.

Gen. Cox: Read those numbers again to me.

The Witness: 75, 18, 8 and 38.

BY MR. MILLER.

Q. When did your next animal experimentation com-

A. In 1910.

mence, that is, in what year?

Q. What month?

A. The feeding began—that is to say, the feeding with the Coca-Cola began on June 13. I would not say they all began June 13. I can tell from my records the time I began. I began June 13 to feed the rabbits.

Q. How many rabbits did you feed, commencing June 13, and what did you feed them?

A. I had three sets of rabbits, which I fed, in 1910; to one set, a third of an ounce of Coca-Cola syrup. A third of an ounce of water was given to them daily. I had the second set in which I gave two-thirds of an ounce of Coca-Cola syrup, and the same quantity of water. The third set I gave one ounce of Coca-Cola syrup and the same quantity of water daily, making three sets.

Q. Now, what was the result as respects body weight of those rabbits, increase or decrease?

A. There was, generally speaking, decrease in weight. I would like to take time, separately. There are three separate groups—so as not to speak of results as the same. They are different.

Q. Just tell us about that, then.

A. Taking up first the 10 cc. rabbits, that it to say, the rabbits which received one-third of an ounce of Coca-Cola syrup daily with a third of an ounce of water,—and there were seven of these rabbits which were subjected to the experiment. They lived a varying length of time, the ex-

periment being discontinued in the case of the three of them. Four of them died.

Q. How long did those four live, that died naturally?

A. The ones that died naturally lived 33 days, 49 days, 97 days and 61 days, respectively.

Q. And the others you killed at the expiration of what time?

A. In one case 149 days; 118 days, and 122 days.

Q. Were autopsies held on those rabbits?

A. Autopsies were held on five of them. Two of them were sent away alive, five rabbits were subjected to examination by members of the Bureau of Animal Industry.

Q. And what condition did you find as respects the normal interior of these rabbits?

A. In all of the five rabbits there was inflammation or congestion of the stomach or intestines, or both. In the alimentary tracts were lesions in all cases.

Q. Had those rabbits been fed on anything or received anything during that feeding that would have produced these changed conditions that you speak of, except the Coca-Cola syrup, so far as you know?

A. No, sir.

Q. Now, take the next set of rabbits on which you experimented; how many of them were there?

A. May I tell the average lost weight of those rabbits?

Q. Yes, we would like to know that. I understand that you said there was lost weight in all these rabbits.

A. Yes, there was, loss of weight. The loss of weight averaged 31.8 per cent., body weight.

The Court: That is for the first group you spoke of?

The Witness: Yes, sir; that is the group in which they received one-third of an ounce, the smallest quantity of the three. In the next group, in which a larger amount of the syrup was given, twice as much—that is to say, two-thirds of an ounce,—

Mr. Miller: (Interrupting) Which commenced when?

The Witness: They began at different times, but in the middle of the summer of 1910. There were six rabbits used. Those rabbits were kept under the same conditions as the ones we have previously described, and the length of life varied in case of the rabbits. They all died, living different lengths of time. They all lost weight, I might say, and the loss of weight in the case of these rabbits was 28.1 per cent. of the bodyweight, at the commencement of the experiment, upon the average. The average lost weight was 28.1 per cent. of the body weight.

Q. And these rabbits were kept under the same conditions as those you have previously described?

A. Yes, sir; they were kept under the same conditions, exactly.

Q When was the next feeding commenced?

A. The third set of rabbits was also commenced, the third experiment, in the middle of the summer of 1910; these rabbits were fed as before, and the result of experiment was a loss of weight.

Q. How much or what were they given in addition to the normal food?

A. They were given an ounce of Coca-Cola syrup with one-third of an ounce of water as a diluent daily.

Q. And how long did they live after you commenced the experiment?

A. Averaged twenty-four days.

Q. Did they die naturally or not?

A. I would not be able to express an opinion on that subject.

Q. Well, what I mean to say is did they die or did you kill them?

A. No, they died naturally.

Q. And they lived on an average of how many days?

A. Twenty-four days.

Q. What was the relative loss of weight on these—I don't mean relative, but what was the percentage of loss of weight of these rabbits?

A. 20.4 per cent., from the beginning of the experiment.

Q. Were there autopsies held on these rabbits?

A. Yes, sir; autopsies were held on all of them.

Q. When was the next experiment commenced and the next set of rabbits experienced upon?

A. The next set of experiments were commenced in the early part of January, 1911, January the 3rd.

Q. How many rabbits were utilized then?

A. Seven.

Q. And what were they given in addition to the normal quantity of food.

A. They were given two-thirds of an ounce of Coca-Cola syrup with one-third of water as a diluent daily.

Q. Were they slaughtered or did they die?

A. Two of the rabbits died, and the remaining five were killed on March 6.

Q. How long did these two that died, how long had these two been living after the experiment commenced?

A. One 23 and the other 25 days.

Q. And those that were killed had been experimented on how long?

A. Thirty-five days for one, 57 for the second, 60 days

for the third, and 60 days for the fourth, and 60 days for the fifth.

Q. Were you present at the autopsy held on these rabbits?

A. No, sir. The rabbits were sent to the Bureau of Animal Industry for autopsy.

Q. By whom were these autopsies performed, if you know?

A. I believe it was performed by Dr. Formad.

Q. Now, what was the amount of loss of body weight on these rabbits, Doctor?

A. These rabbits lost upon an average of 364.2 grams, that was the loss; one of these rabbits gained in weight 135 grams. One gained 135 grams and the others lost 364.2 grams on an average.

Q. Upon the average what was the loss of body weight?

A. 22.28 per cent.

Q. When was the next set of experiments commenced?

The Court: I suggest without asking the witness detailed questions you ask him to describe it; he knows what you want to get at.

The Witness: In the set of experiments three rabbits were employed, they were given each day two-thirds of an ounce of the 1 per cent. solution of caffeine in water with one-third of an ounce of water, making an ounce of both. One of the rabbits lived 29 days after it was begun; another rabbit 41 days, and the third one lived 59 days, and the experiment was discontinued; I believe that was March the 6th when I had to stop. The loss of body weight of these rabbits was upon an average 26.2 per cent. of body weight.

BY MR. MILLER:

Q. Were you present at any of the autopsies on these rabbits?

A. No, sir.

Q. Who conducted them?

A. They were conducted at the Bureau of Animal Industry by, I believe, Dr. Formad.

Mr. Sizer: Now, I object to the testimony of the witness, as to what he believes.

The Court: Yes, the objection is sustained.

BY MR. MILLER:

Q. What was done with those rabbits, did they die or were they killed?

A. They were sent over to the Bureau of Animal Industry for autopsy.

Q. Now, state whether or not there was any means of determining which were sent over for autopsy and who held the autopsy, and if so, tell what that was.

A. I have a report on most of the autopsies myself and I believe that Doctor Formad has prepared and furnished reports ——

Mr. Sizer (interrupting): I object to his testifying to what he believes.

The Court: Yes. The question is, what means of identifying these same rabbits as the rabbits on which the autopsies were performed.

The Witness: The rabbits first are identified by numbers. In the experiments of 1908 they were identified merely by the color of the rabbit, and if the rabbit did not have enough color, a little color was put on the back to show, whereas so many rabbits were used in experiments in 1910 and '11 that a tag is put in the ear with a number upon it, and that tag remains until after the autopsy or until after the experiment was completed. The identification is through that number and the autopsy corresponds to that number.

Q. How did you attach the tag to the ear of the rabbit? Did you do that when you commenced to feed him?

A. The tag is one of these little tags you see on stockings when you buy them; they have a little square piece of pasteboard with two pins, you might say, which were simply put through the lobe of the ear.

Q. State whether or not these tags remained on the rabbits while you were conducting these experiments and until they were sent over to the Bureau of Animal Industry for autopsy.

A. Yes, sir.

Q. Now, will you please refer to and give us the numbers of the rabbits which were sent over on which autopsies were purported to have been performed by Doctors Formad and Eichorn; I asked you this because we are wanting to identify them.

A. I have summarized it; the water rabbits, there were none, and in the case of Merchandise No. 5, none; Merchandise No. 5 plus caffeine rabbits, Doctor Formad had Rabbit No. 11 and Doctor Eichorn had No. 13. Of the Coca-Cola 20 cubic centimeter rabbits, Dr. Formad had No. 9. In the case of the 30 cubic centimeter Coca-Cola rabbits, the next set, that is 1908, Dr. Eichorn had Rabbit No. 6. I believe you only asked about Dr. Formad and Dr. Eichorn.

Q. Yes. The men who are present.

A. Doctor Formad had the autopsies in case ——

Mr. Sizer: I want to renew my objection to the testimony of the witness; he is simply testifying from the same paper that he had in his hand there, and he has stated already that he was not present at the autopsies, and he merely believes they were performed by certain persons.

The Court: He has stated that at several he was present and several he was not. Your answer should be limited to those you were present at and know of of your own knowledge.

Gen. Cox: I insist he has stated that this particular number of rabbits were sent to these men.

The Court: He has stated he didn't know who they were all sent to, and he has stated that he did not see all the autopsies himself.

BY MR. MILLER:

Q. Just mention those numbers that you have already given, as I understand — you could not tell who were present, as I understand, at the autopsies in three instances given.

A. One autopsy that was performed in 1908.

Q. You were present at that?

A. Yes, sir.

The Court: This witness may just file a list for the subject of investigation of the rabbits in these different experiments with the numbers given them before they were sent to the Bureau of Animal Industry. He may file that list so counsel may see it.

Mr. Miller: I did not quite catch your Honor's ruling.

The Court: I say, he may make up a memorandum list of the different animals involved in these experiments with the numbers that were given to them that were sent to the Department of Animal Industry.

BY MR. MILLER:

Q. Then I will ask you to make a list; you need not do it now, but to make such a list and file the same as Exhibit No. 1 to your testimony, a list of the rabbits on which autopsies were supposed to have been held and when you were not present; that is, for 1908, showing the number of the rabbit and identifying him in that way, and likewise the man to whom he was sent for the purpose of making this autopsy. Will you do that and file it as Exhibit No. 1?

A. Yes, sir.

Q. Now, tell whether or not you personally sent them to Dr. Eichorn and Dr. Formad.

A. Yes, sir.

Q. What was the course or the routine by which these

rabbits on which autopsies were supposed to have been conducted in 1910 and 1911, actually forwarded from your department to the Bureau of Animal Industry, for the purpose of autopsy?

A. They were sent by the messenger to the Bureau of Animal Industry of the Department of Agriculture where the autopsy was to be performed.

Q. How far is your department or building in which you conduct these experiments, from the Bureau of Animal Industry?

A. It is diagonally across the street from it.

Q. And the street is about how wide?

A. About sixty feet.

The Court: That is not material; across the street will do.

BY MR. MILLER:

Q. Now, they were sent by a Government messenger?

A. Yes, sir.

Q. How did the reports as to the results of these autopsies come back into your possession or into your department?

A. The reports were also reported by messengers and the number upon the rabbits correspond with the number upon the reports which were sent us.

Q. Were the numbers which were given to the rabbits during the time of each experimentation in the ear attached, as it was attached at the time it was despatched from your department over to that of the Bureau of Animal Industry?

A. Yes, sir.

Q. Now, tell us whether or not this matter of animal experimentation affords an insight as to the effect of drugs on the human system and whether or not it is generally resorted to for the purpose of ascertaining the effect of drugs on humanity.

Mr. Sizer: I object to that question, your Honor; it is clearly a matter of opinion or inference.

The Court: You may answer as to whether it is generally resorted to for that purpose.

BY MR. MILLER:

Q. I will limit my question to that — is or not animal experimentation generally resorted to for the purpose of determining the effect of drugs on the human system?

A. Yes, sir; in many cases it is the only way in which such effect can be determined.

Q. State whether or not this water and the Merchan-

dise No. 5 and the Coca-Cola syrup and the caffeine were all fed to the rabbits in substantially the same manner.

A. Yes, sir; they were.

Mr. Miller: That is all.

CROSS-EXAMINATION,

BY MR. SIZER:

Q. Doctor, did you ever perform the experiment of feeding beefsteak to a cow over a series of days to ascertain what effect it would have on her inside condition?

A. No, sir.

Q. It would be very likely to have some effect?

A. Yes, sir.

Q. Not suited for that kind of food?

A. No, sir.

Q. Not the food that you would feed a cow?

A. No, sir.

Q. The same would be true, too, if you undertook to feed hay, for instance, to a tiger?

A. It might be; I don't know.

Q. It probably would result deleteriously?

A. Very likely.

Q. It would result in inflammation of the intestinal tract, would it not?

A. Yes, sir, and very acute symptoms which were not present but absent in these rabbits.

Q. Now, Doctor, rabbits do not ordinarily drink coffee or tea, do they, or other beverages?

A. No, sir.

Q. Or eat chocolate?

A. No, sir.

Q. They do not partake ordinarily of anything that contains caffeine, do they?

A. No, sir.

Q. On the contrary, the human race for several hundred years past has been in the habit of using coffee and tea and caffeine-containing drinks?

The Court: I think the jury will take notice of that — the jury know that fact.

BY MR. SIZER:

Q. What was the weight of these rabbits?

A. What was the weight?

Q. Yes, about the average weight?

A. Why, roughly speaking, without looking at my notes, I should say they weighed between somewhere around 1200 up to 2300 or 2400 grams.

Q. What is that in pounds, please?
A. Well, on an average, four.
Q. About four pounds?
A. Yes, sir.
Q. And the average man would weigh about something like 150 pounds, would he not?
A. Yes, sir.
Q. Now, if you gave one ounce of the syrup, this Merchandise No. 5, to a rabbit weighing, say four or five pounds, in a day, that would be equivalent to giving about thirty ounces of syrup to an ordinary man, would it not?
A. No, sir; it would providing the only factor was the factor of weight, but we have to deal also with the factor of the resistance of the animal.
Q. Well, suppose that you were to give a healthy normal individual thirty ounces of syrup every day for a month or two, would that or not be calculated to have some very injurious effects on his stomach and intestinal tract generally?
A. Yes, sir.
Q. Suppose then you were to give him enough of syrup or some substance that he was totally unaccustomed to, that he didn't take under normal conditions, would that tend to enhance the deleterious effect of the syrup?
A. Yes, sir.
Q. Thirty ounces of syrup would be about how much in a common every day measure?
A. It would be about, roughly speaking, two pints.
Q. About two pints.
A. Yes, sir.
The Court: Figure it in glasses, how would that be?

BY MR. SIZER:

Q. How many glasses would it fill, like that? (Showing witness a glass.)
A. Why, I suppose about four.
Q. About four glasses full?
A. Yes, sir.
Q. Did you give them (the rabbits) this syrup in one dose each day?
A. Yes, sir.
Q. One dose; about what time of day?
A. It differed; there were so many experiments over so long a time that the time varied, but as a general rule it was in the morning.
Q. Did they seem to eat it with a great deal of relish; were they fond of it?
A. They were fed, they didn't eat it.

Q. They didn't take it voluntarily?
A. No, sir.
Q. How did you get them to take it at all?
A. It was fed to them with a stomach tube, that is the method in which we have to feed it to them.
Q. You put a tube into the stomach and poured the syrup through the tube?
A. Yes, sir. You have a little rubber tube, a catheter introduced into the stomach, and through this the liquid is introduced.
Q. Well, poking a tube down a rabbit's throat once a day for a month or two, that would be calculated to produce some inflammation?
A. No. I undertook to determine that point, I did some experimenting. I can tell you about if you would like to know, in which the tube was introduced into a rabbit's stomach the same way and left there for the same length of time and withdrawn and the rabbit lost no weight, and that was kept up for a month. And this was a water rabbit, the water experiments, in which the tube was used and in which the rabbits didn't lose weight.
Q. Did the rabbit take the water voluntarily or did you pour it down?
A. It was introduced in the same way through the stomach tube.
Q. And so you kept this up for how many days, fed them that ounce of syrup?
A. That varied with the rabbits, it was a different length of time; some of them didn't seem to be affected very much at the end of six months. I have them here if you would like to see them.
Q. Well, some had more resistance, Doctor, than others?
A. Yes, sir.
Q. And some got fat under that sort of treatment?
A. No, sir.
Q. I thought you said they increased in weight.
A. That was the water rabbit?
Q. Not any of the rabbits that you put this syrup into?
A. I don't recollect that any of them gained in weight except the water rabbits — yes, there was one rabbit, too.
Q. Well, he was a pretty hale sort of a fellow, was he?
A. Yes, the biggest rabbit I ever saw.
Q. A pretty healthy rabbit?
A. Yes, he was.
Q. Well, you know nothing about the ages of these rabbits?
A. The rabbits, the most of them, were obtained from

the Bureau of Animal Industry.

Q. They were young rabbits?

A. I could not say that in regard to them.

Q. They told you they were young rabbits — you don't know?

A. No, sir.

Q. There was no way of telling the rabbit's age from inspecting it externally?

A. No, sir.

Q. You can't look at his teeth and tell how old he is?

A. Well, I am not certain about it, I don't know about it.

Q. You do not know the ages of any of them?

A. Except that they were grown rabbits, not any undergrown rabbits.

Q. What is about the average length of a rabbit's life which is kept in captivity and a tube is poked into his stomach through which syrup is poured into him?

A. I don't think the injection of a tube would shorten the life, but I don't know the length of life.

Q. You don't know how long your rabbits would live if you were to pour simple syrup at the rate of an ounce a day into his stomach?

A. No, sir.

Q. You have performed no experiments along that line?

A. Yes, sir, I have with some simple syrup. I would like to show them to you if you would like to have them.

Q. I don't care about seeing them unless you can answer the question as to how long a rabbit will live when you pour an ounce of any ordinary syrup into his stomach through a rubber tube every day.

A. I don't know how long he would live, but I will say he would lose flesh.

Q. How long could he stand it, do you know?

A. No, sir.

Q. Do you know, Doctor, that this Mer. No. 5 contains a good deal of alcohol?

A. No, sir, that is not my understanding.

Q. Do you know?

A. I have it by hearsay, I don't know.

Q. You don't know what it contains?

A. I have some idea.

Q. It contains alcohol.

A. Well, it contains a little bit of alcohol, it is percolated with wine.

Q. Don't it contain sixteen per cent of alcohol?

A. That is certainly not my impression.

Q. You don't know then, and would not undertake to say?

A. No, I know simply from hearsay.

Q. What is that?

A. I know only from hearsay.

Q. Do you know what else is in Mer. No. 5?

A. I think Mer. No. 5 is made by percolating, ground up cola and decococalized coca leaves.

Q. Do you know that, Doctor, or do you testify to it?

A. I have been simply told that.

Q. I object to your testifying what you have been told — do you know that as a matter of fact yourself?

A. No, sir.

Q. You do not?

A. No, sir.

Q. Where did this particular Mer. No. 5 come from?

A. From Mr. Fuller.

Q. From who?

A. Mr. Fuller.

Q. That is Mr. Fuller who has testified as a witness here yesterday?

A. Yes, sir.

Q. Where did you get the Coca-Cola syrup that you used?

A. The Coca-Cola syrup was bought.

Q. Where did you buy it?

A. It was obtained through the Washington Drug Exchange, they bought that from Philadelphia.

Q. And do you know where they got it?

A. Yes, sir.

Q. How do you know?

A. From my records.

Q. How was that?

A. I have the records.

Q. You have got no other information about it?

A. The records are regular records.

Q. I didn't ask you whether the records were regular records.

A. Well.

Q. So you don't know personally whether it came from Philadelphia or not?

A. Yes, sir, as much as I know anything that I do not actually see.

Q. But I am asking you if you actually saw this and know where it came from — you are simply testifying from what the druggist told you as to where he got this stuff.

A. Well, I have the records to show.

Q. Have the records to show—you don't know whether

the records are correct or not.

A. No, sir, I could not verify the records. They are the regular official records of the Department, and there is no reason to believe them otherwise than correct.

Q. Well, now, I am not asking you to explain anything about the records. I want to know if you know from your own personal knowledge.

A. They do not go back of the records of the department.

Q. You say it was bought from a drug store in Washington?

A. The wholesale drug exchange.

Q. Did you make any analysis of it?

A. No, sir.

Q. You are not an analyst in any way, Doctor?

A. No, sir.

Q. Well, how much of the Mer. No. 5 did you get from Dr. Fuller?

A. Well, it was obtained — it was in 1908, and I would not be able to state definitely unless I would look up some records and see how much there was.

Q. You got it in 1908?

A. Yes, sir.

Q. Dr. Morgan, did you personally feed these rabbits during the entire course of these experiments?

A. Well, practically; no one else had anything to do with them, no one else fed them with the exception of ten days or two weeks when I was out West, and Dr. Kebler took my place.

Q. Now I understood you to say on the examination in chief that certain keepers fed them.

A. They had the cleaning out of the cages and looking out for the rabbits' health and welfare, but they did not have anything to do with the feeding of them.

Q. What was it that you fed them?

A. Do you mean in the way of food?

Q. Yes.

A. They received oats and cabbage.

Q. All of them?

A. Yes, sir.

Q. Each one received oats and cabbage?

A. Yes, sir.

Q. The same amount was fed each of them?

A. Yes, sir.

Q. The same amount of feed and the same character of feed?

A. Yes, sir.

Q. Were they all practically or apparently in the same

condition when the experiment started?

A. Yes, sir, all in the best possible condition.

Q. Now I want to ask you now, Doctor, would each one of them take as much as you fed it?

A. Well, speaking about the experiments since 1908, every other day they received fifty grams of cabbage.

Q. All the rabbits together received that?

A. Each rabbit received that, and the oats were not weighed that were given them, but they were put in a dish and it is customary to keep their receptacles full at all times.

Q. You didn't weigh the oats that you fed them?

A. No, sir.

Q. You did weigh the cabbage on certain of the experiments you say?

A. In all of the experiments since 1908.

Q. How about those made in 1908?

A. In 1908, a few cabbage leaves were scattered ——

Q. (Interrupting) Do you know whether all of the rabbits eat all you gave them during the experiments subsequent to 1908?

A. Subsequent to 1908, the rabbits ate all the cabbage which they received unless they were toward the end of the experiment when they were running down very fast, but taking it as a gneral rule except in the latter stages, they would eat the cabbage — it seems that the quantity was really a little short, if anything.

Q. Suppose that you were to feed a human being thirty ounces of syrup, just plain simple syrup, a day, would you expect him to eat the ordinary amount of food that he would normally take?

A. No, sir.

Q. You would not?

A. No, sir.

Q. It would have some sort of a depressing effect on his appetite, would it?

A. Yes, sir.

Q. And if he didn't take his regular amount of food, his condition would run down, would it, deteriorate?

A. Yes, sir, but these rabbits they ate very freely of their cabbage. They had no acute symptoms such as a man would have, or that syrup in large quantity would give, diarrhoea, to indicate that the syrup disagreed with them. These rabbits had no symptoms of that kind. They presented no acute symptoms like diarrhoea until towards the end. Just preceding death, they often had diarrhoea, and this was one of the symptoms which I learned to look for as showing that they were near death. But immediately

after feeding, they gave no signs of diarrhoea.

Q. As a matter of fact, most of them did die within a month or two, and those that did not die, you killed and found their digestive tracts very much inflamed?

A. I would not say that; they seemed to be somewhat inflamed. Some of them that died did not seem to be seriously hurt. I think that is a true statement.

Q. And some of them died from natural death, or died without being killed, that is true?

A. Yes, sir.

Q. And others you killed and found that the diet you had been subjecting them to had a deleterious effect on their internal arrangement.

A. Well, yes, changes were found, I would not say as to exactly the cause. I would not be prepared to state.

Q. You would not be prepared to state whether it was due to the diet or not?

A. No, sir.

Q. Well, they may have died from old age.

A. No, sir, they could not have died of old age; they were not old rabbits.

Q. Well, you say you don't know anything about their ages, only they were grown.

A. There was every indication that they were strong and healthy rabbits.

Q. They were not strong and healthy rabbits during the latter part of your experiment, some of them?

A. No, sir.

Q. Dr. Morgan, did you preserve any memorandum as to the sexes of these rabbits?

A. They were taken indiscriminately.

Q. You don't know whether any of them were pregnant at the time you were carrying on the experiments?

A. Yes, sir, I recollect one case where I was very much surprised by the appearance of a litter of rabbits.

Q. And would that be calculated to have any effect on the health of a rabbit?

A. Well, in such cases the experiment was stopped and started over again after they obtained a stable weight.

Q. Now, when you sent these rabbits over to the Bureau of Animal Industry, as you say, in order they might be experimented on, did you communicate to the people there who were to perform the autopsies, the nature of the experiments that you had been conducting?

A. No, sir, this was not done in these autopsies.

Q. Not in any of them?

A. No, sir; I would not say positively that in no case they did not know what the rabbit had been receiving, but

there was no inquiry made about it at all, and no information given intentionally on that subject.

Q. You did not have any control rabbits during any of these experiments?

A. These water rabbits, at first, were used as control.

Q. That was your first experiment?

A. Yes, sir.

Q. During the time that the other experiments were going on, you didn't have any control rabbits?

A. No, didn't need any.

Q. Now, I didn't ask you that, you didn't have any?

A. No, sir.

Q. Did you have any rabbits during any of these experiments to which you gave water and sugar alone?

A. There were syrup.

Q. How was that?

A These are the syrup rabbits to which I referred when you spoke a while ago.

Q. The first set of rabbits you gave pure water to?

A. Yes, sir.

Q. Now, when was it you conducted any experiments in which you fed rabbits sugar and water?

A. There was a set in 1908 and a set in 1911 in which plain syrup and water was used.

Q. In which what was used?

A. In which plain syrup and water was used.

Q. Was that experiment conducted at the same time you were conducting experiments as to water alone?

A. No, sir, that was done subsequently, I think.

Q. Did you have any other rabbits on which you undertook to experiment at the same time you were giving these rabbits sugar and water?

A. I don't remember just this moment about that.

Q. How much sugar and water a day did you give these rabbits that you made that experiment on?

A. I would not be able to say without looking the matter up how much sugar and water was given.

Q. Don't your notes show, Doctor?

A. Yes, sir, I think the proportions — I think the amount of sugar and water was practically the same as it is in the Coca-Cola syrup.

Q. What is the amount?

A. I can't say, however, what the amount is; I don't know.

Q. If you don't know the amount that was in the substance how do you know it was the same in the Coca-Cola substance?

A. It was prepared by a man for me who did know.

Q. You don't know as a matter of fact how much sugar there is in the coca cola syrup?

A. No, sir.

Q. Don't your notes show how much sugar it was you gave these rabbits?

A. Just the quantity daily that there is in the same amount of the coca cola syrup.

Q. Well now, what I want to know is whether or not your notes show the amount of sugar you gave or water that you gave to the rabbits that you fed that particular experiment on?

A. Yes, certainly.

Q. Well, refer to your notes and state it?

A. All right, sir. I have those notes here.

Q. Now the question I asked you was to state the amount of sugar and the amount of water that you fed to these particular rabbits per day in that experiment in which you say you fed syrup composed of sugar and water?

A. These three rabbits were given plain syrup two-thirds of an ounce, and one-third of an ounce of water.

Q. Do you mean two-thirds of an ounce of sugar?

A. No, sir, but the syrup is made up of the same density, or of the same sweetness as the coca cola syrup.

Q. How do you know that?

A. It was given to me by one of the analyists as having been made up in that way.

Q. You don't know how much sugar that syrup contained?

A. No, sir, but it was furnished to me by a man who did know.

Q. I say from your personal knowledge?

A. No, sir, I cannot say.

Q. You had that syrup prepared for you by somebody else?

A. Yes, sir.

Q. Two-thirds of an ounce of syrup?

A. Yes, sir.

Q. And how much water?

A. One-third of an ounce of water as a dilutent.

Q. Given each day?

A. Yes, sir.

Q. And over how many days?

A. Over fifty-nine days, when the experiments were discontinued. That was March 6th that I had to stop, and at that time these three rabbits had lived fifty-nine days.

Q. That is they had lived fifty-nine days since you had them, and you don't know how long they had lived before you got them?

A. They were healthy rabbits when I commenced the experiment.

Q. Well, I didn't mean to contradict you about the health of the rabbits, but I wanted to know how long they lived before you got them?

A. No, sir, I don't know.

RE-EXAMINATION BY MR. MILLER:

Q. Now, I understand you to say that you obtained this mixture from Dr. Fuller, Dr. Morgan?

A. Which mixture?

Q. The mixture that you fed these rabbits merchandise No. 5 and this syrup?

A. Yes, sir.

Q. And that caffeine and solution of water, state whether or not you received that from him also?

A. Yes, sir, from him.

Q. Now, he is an analyist?

A. Yes, sir.

Q. Now, as to the resistance of the man or a rabbit or the tolerance you said on cross-examination, as I understand you, that there was a difference between a man and a rabbit as respects body weight, that is to say that a man would not tolerate as much according to his body weight of caffeine as a rabbit would?

A. Yes, sir.

Q. Now, state whether or not that is the accepted theory by the medical men and writers generally?

A. Yes, sir, I think so.

Q. Do you know what the relative degree of tolerance or proportion is as respects body weight?

A. I think that ordinarily the rabbit has ten times as much or is ten times as resistant to caffeine as man.

Q. Do you know the weight of a man's brain?

A. It will average about fifty ounces.

Q. Do you know the weight of a rabbit's brain?

A. The rabbit's brain weighs about four grams per kilo.

Q. Well, take a four-ounce rabbit — I mean a four-pound rabbit, what does it weigh?

A. According to my recollection, and it is merely from recollection, the weight of the rabbit's brain is along about a drachm, as far as I can remember; I am not prepared to state that definitely.

Q. You are not prepared to state that definitely?

A. No, sir.

Q. I will now ask you to state whether or not sugar is found or is contained in the food that is ordinarily given to rabbits as a part of their daily food?

A. Yes, sir.

Q. And in what food does it occur which is ordinarily fed to rabbits?

A. I think it occurs in small quantities in both oats and cabbage.

Q. How about carrots?

A. The rabbits didn't get any carrots.

Q. Well, rabbits do get carrots?

A. Yes, sir.

Q. Is it fed to them frequently or not?

A. Yes, sir, it occurs in most instances.

Q. Does sugar occur in carrots?

A. I would not say positively, but it is my opinion that it does.

Mr. Sizer: I object to his belief.

The Court: The objection is sustained.

BY MR. MILLER:

Q. Now, as to the manner in which the rabbits were fed, that you experimented on, I will get you to state whether or not they were fed as rabbits are generally fed—now as to the manner in which the oats were fed to these rabbits, which you experimented on, I will get you to state whether or not they were fed oats in the way they are fed to the rabbits usually?

A. Yes, sir, the same method exactly.

Q. What is that method?

A. There is a saucer in the bottom of the cage and this saucer is kept supplied with oats at all times. There is no attempt made to give them any particular amount, simply kept full.

Q. Now, as to this coca cola syrup. I will ask you whether or not you drew that yourself from the keg that was contained in the department building there at Washington and from which these experiments on the rabbits of 1910 and 1911 were conducted?

A. Yes, sir, once.

Q. I will ask you to examine that keg there before you, which has been filed as an exhibit to the deposition of Dr. Fuller, and state whether or not that resembles the keg from which this product was drawn?

A. Yes, sir, it does.

Q. Now, have you the apparatus with which these rabbits were fed, both with the water and with the simple syrup and with the coca cola syrup, and then with the caffeine, or one substantially like that?

A. Yes, sir, I have the same one.

Q. I will ask you to exhibit that to the jury?

A. Yes, sir. This arrangement was used; it is just an ordinary soft rubber catheter; it is easy to adjust; it has a glass funnel here and the rabbit is fed by having an assistant hold the rabbit and then this is passed down into the rabbit's stomach, gently, and the liquid is poured into the funnel, and allowed slowly to run down by gravity into the rabbit's stomach.

Q. Is that the way in which the rabbits were fed the water and caffeine?

A. Yes, sir.

Q. And also the coca cola syrup?

A. Yes, sir.

Q. Now, doctor, have you a map which shows a summary of your feedings of these rabbits commencing with the water and coming up to and including March 6th, 1911, when you were obliged to discontinue the experimentations in order to attend this trial?

A. Yes, sir.

Q. And, if you have I am going to ask you to file it as exhibit No. 3 to your testimony?

A. Yes, sir.

Mr. Sizer: That is not in rebuttal.

Mr. Miller: Then I will ask leave to introduce it in chief; your Honor did not permit us to file our maps one at a time, and this is a summary of everything, and I would like to present it at this stage, as if presented in chief.

Mr. Sizer: We would like to see it.

Mr. Miller: We have no objections to your seeing it.

Mr. Sizer: Has it been filed?

Mr. Miller: No.

The Witness: The experiments were conducted in the same way as the others; it is a summary of the experiments; simply bunched together, the results, you see.

The Court: Well, you may show that to counsel on the other side.

Mr. Sizer: As far as we can judge this last map seems to be nothing but a summary of all of the others, and if the others are objectionable as evidence, this is not evidence; it is not the best evidence of the fact.

The Court: I do not think it is objectionable. The others were excluded on the ground of saving time.

Mr. Miller: We will ask the witness to file that map as exhibit A to his testimony, and to explain to the jury what that second line on the chart means, what it signifies as to the other lines, and you need not go into detail as to the others, they will understand from that.

The Witness: This is (the map) a summary of the exhibits which I have referred to here. Here is the same base

line, which is on the original drawing, showing the weight of the rabbits at the beginning of the experiments; here are the water rabbits, and here is the merchandise No. 5, and then we have the coca cola, 1910, that is there; that is one-third of an ounce; this here is the line with two-thirds of an ounce; and here is the line with an ounce, and I have drawn here in green a summary of the caffeine experiments, one with merchandise No. 5 with caffeine, and the other the solution of caffeine.

The Court. What is the quantity that would indicate the loss of weight, how many degrees or per cent?

The Witness: This is taken from the charts which are drawn to the scale, by use of tracing paper.

The Court: What is the scale, if you wanted to represent the average weight, the decrease of weight, for instance by five per cent, how about that?

The Witness: It would be included in this way, it would be placed on this side, the number of grams of loss at regular intervals, and on a regular scale, that is to say the result would be indicated by the amount in the drop of the line.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. Doctor, that map you file there, as I understand, that is just simply sort of an average of the result of your experiments, is that correct?

A. Yes, sir, a summary.

Q. And this does not indicate the result of any one experiment?

A. No, sir.

Q. But of all?

A. It is a summary of the whole.

Q. The fact is you testified awhile ago that one of these rabbits you fed coca cola syrup gained in weight?

A. Yes, sir.

Q. And why have you not got him on here?

A. Well because when you come to sum him up with the rabbits which died it brings his weight down below the line.

Q. Then I will object to that kind of a map.

A. Well ——

The Court: It merely indicates in a general way the general results.

Mr. Miller: We have the maps there which show it in detail and which were ruled out and we would be glad to show it and file them.

The Court: I don't think it is necessary.

BY MR. SIZER:

Q. So, doctor, this in the form you have it here listed, your experiments, you stated that a rabbit gained in weight, and against this loss in weight you undertook to show no average or nothing for the rabbit that gained in weight?

A. The idea was to bunch them up, as I said, and get the results together in the shortest possible way.

Q. But the point I am getting at is this, this map on its face indicates that all the rabbits you experimented with except the one you fed water to lost in weight?

A. Yes, sir.

Q. That is incorrect?

A. No, sir, the map is intended to indicate that setting off those that lost in weight against those that gained in weight, the loss in weight amounted to more than the gain in weight. Only one rabbit gained, and that is the one that we referred to, the general average was a loss.

Q. And that one rabbit does not show up?

A. Only by way of an average.

Q. I will ask you this, doctor, you took this instrument, this catheter, you put that tube into the rabbit's throat, and when you inserted it, didn't it pass on down through the stomach and into the intestines?

A. Oh, no.

Q. Well, how do you know it didn't?

A. It would be impossible to pass it through on account of the shape of the stomach; it would not pass.

Q. Is it true that the ordinary results of feeding rabbits even the food to which they are accustomed to through a tube is injurious to them?

A. No, sir.

Q. Did you ever hear of a rabbit dying from being fed milk through a tube?

A. No, sir, never did.

Q. Do you know anything of the experiments of Seller & Hamburger on feeding rabbits through tubes?

A. No, sir.

Q. You never heard of them?

A. No, sir.

Q. And if they ever made any experiments of that kind you don't know it?

A. No, sir.

Q. Now, what was it you said about the rabbit's tolerance for caffeine?

A. I think that the rabbit is much more resistant.

Q. How much more?

A. The rabbit, ordinarily speaking, about ten times.

Q. Is that statement based on your own experience, or on what somebody told you?

A. That is based on the results of experiments and by what I have read.

Q. In what work did you read that statement?

A. I never saw that exact statement in print.

Q. You never saw that in any book?

A. No, sir.

Q. What was it that you got that from?

A. Well, so far as the printed statement is concerned, in Muccioli's book.

Q. What is that book?

A. It is an Italian book on or work on the subject of Toxicology, in which he states caffeine is fatal to man, the dose is two and three grams, and our experiments in the Bureau have shown that the lethal dose for rabbits is about two and a half grams per pound and that by taking the two together you can arrive at an estimate. There is no direct statement so far as I know.

Q. Where did you say — why did you have to go to that Italian work to find out the lethal dose of caffeine?

A. I didn't see it anywhere else is all.

Q. Is it a well known fact that there is not a case known in medical literature of death caused by caffeine to any human being?

A. There are a number of instances in which death has been caused by caffeine.

Q. In what work do you find that?

A. Zenetz reports three cases of death by caffeine. Liell has reported one case, it is reported in Butler's Pharmacology. I do not recall at this moment any more, but I may be able to supply you with further references if you wish them.

Q. We would like to get them, we would like to get any further references you may have on that subject, any further cases of death caused by caffeine if you know of any. What is this work Zenetz?

A. A work on Toxicology.

Q. Have you that work with you?

A. I don't say for certain; I may have it, I am not positive about it.

Q. What are the doses of caffeine that result in death according to Zenetz?

A. I am not familiar with the details.

Q. Would you have to look it up?

A. I don't remember that, he reported three cases of death from caffeine.

Q. You don't remember where those cases were?

A. No, sir.

Q. And none of the details about it?

A. No, sir.

Q. Now, about the Liell case, is that one of the three cases Zenetz refers to?

A. No, sir, it is a different one.

Q. But Liell only refers to one?

A. Yes, sir.

Q. Do you remember of the details of that case?

A. No, sir; it is in Butler's Pharmacology.

Q. Do you remember the details of any of those cases?

A. No, sir.

Q. Did you ever experiment on rabbits to see what would be fatal single dose of caffeine?

A. No, sir.

Q. I believe you say that the brain of a rabbit was not much smaller proportionately than the brain of a man. On the other hand, it is true that the spinal cord of a rabbit is much larger proportionately than the spinal cord of a man?

A. I would not be prepared to answer that question.

Q. Then your testimony about the comparative size of the brain of rabbit and man is just your guess?

A. No, I saw a rabbit's brain weighed, but I never saw a rabbit's spinal cord weighed.

Q. You didn't make any examination of the spinal cord in any of these subjects?

A. No, sir.

Q. It is a fact that caffeine affects the spinal cord very materially?

A. Both the brain and the spinal cord.

Q. Both the brain and the spinal cord.

A. Yes, sir.

Q. What kind of sugar was it you fed to these rabbits?

A. Just plain cane sugar.

Q. Cane sugar?

A. Yes, sir.

Q. That is not the kind that they get in vegetables?

A. I am not positively certain about that, I don't know, but I think not.

Q. Cane sugar does not appear in vegetables?

A. Yes, sir, it is cane sugar.

Q. It does not appear in vegetables that rabbits eat?

A. I don't know, I am not capable of saying, I don't know; I never studied the subject out.

Mr. Sizer: That is all, except I would like to have this witness get these authorities and produce them tomorrow, and we would like the privilege of asking him about them.

The Court: If you can get these books, bring them in.

Mr. Miller: We will have them produced in the morning and will ask leave to file them as Exhibit No. 1 to his testimony.

or a synopsis of the reported deaths by caffeine, if that is what counsel desires, and I suppose it is.

Mr. Sizer: What is that?

Mr. Miller: We will ask him to put it in typewritten form and file it as Exhibit No. 1.

Mr. Sizer: No, we want the books here.

Mr. Miller: We will bring down all the books we have on that point and file them as Exhibit No. 1.

The Court: You can offer them in evidence and I will rule on them at that time. The witness will get such books as he can for counsel. Is there any re-examination

Mr. Miller: Nothing except when he produces that statement.

(Thereupon Court, at 3 o'clock P. M., adjourned until 9 o'clock A. M., Wednesday, March 15, 1911.)

Chattanooga, Tennessee, Wednesday, March 15, 1911.
Nine o'clock A. M.

The Court met pursuant to adjournment.

Appearences: The same as on yesterday.

PLAINTIFF'S EVIDENCE CONTINUED:

F. P. MORGAN

resumed the stand for further cross examination.

CROSS EXAMINATION, CONTINUED,
BY MR. SIZER:

Q. I asked you on yesterday, Dr. Morgan, to produce the authorities which you state contain the accounts of death resulting from the use of caffeine.

A. Yes, sir, I have those references.

Q. Have you the authorities?

A. Not here in court; I was to present references, I understood.

Q. What are the authorities to which you refer?

A. Well, excuse me until I—

Gen. Cox: (Interrupting.) Just a little louder, Doctor.

The Witness: All right.

BY MR. SIZER:

Q. State what they are.

A. Zenetz is one of them, in the Semaine Medicale, 1899, which records—

Q. (Interrupting.) Now just a moment—that is a periodical, isn't it?

A. Yes, sir.

Q. Have you the original periodical?

A. Not in the court room.

Q. Have you got it with you in town?

A. Yes, sir.

Q. I will ask you to bring the original document that you refer to.

A. I understood I was to furnish references. That was my information.

Q. That was not my question, I asked for the book.

Mr. Miller: That belongs to the Surgeon General's office, and while we have the volume here and all that, we are not prepared to put that in evidence, we are not prepared to file that book, but we should be very glad to let counsel look at it, as we did that little bulletin presented yesterday, by me to him, but we are not prepared to put the book in evidence. The question asked this witness was whether he had ever heard of any cases of killing by caffeine. Now the witness has produced a list of the cases he has heard of.

Mr. Sizer: The question that I asked the witness was expressly that he produce the original authorities that he referred to in that statement.

Mr. Miller: I will appeal to the stenographer's notes in regard to that.

The Court: That will be immaterial. The witness cannot be required to produce books, but as opposing counsel has consented that the book may be brought in, that may be done.

M. Sizer: We would like to have that book.

The Witness: All right.

BY MR. SIZER:

Q. What other authorities do you refer to?

A. Gautherin, in the Paris Thesis, 1905, reports two cases of deaths by caffeine.

Gen. Cox: How many cases did Zenetz report?

The Witness: How many cases?

Gen. Cox: Did you say three?

The Witness: Zenetz, three, and Gautherin, two.

BY MR. SIZER:

Q. And what others?

A. Lemaire, M. B. Lemaire, in the Journal of Medicine of Bordeaux, Vol. 39, May 9, 1909, page 294, and following pages, reports one.

Q. Well, both of these references given, that is the article by Lemaire and the one by Gautherin are in periodicals?

A. Yes, sir; I am not absolutely certain whether the Paris Thesis is published.

Q. Is that all you have?

A. Yes, sir.

Q. Did you mention Liell on yesterday?

A. I wish to correct my statement in regard to that; that was a mistake; Liell reports a case of poisoning and not a case of death.

Q. You also referred to Butler.

A. I think he reports that case of Liell's.

Q. That is the same case?

A. Yes, sir.

Q. And that is all the references you have?

A. In the cases of death; there are some more cases of poisoning.

Q. Now I want to ask you about the time that elapsed between the death of these rabbits that post mortem examinations were held on, and the date on which you got report of the autopsies.

A. The report of autopsies were received at varying intervals after the death of the rabbits; the autopsies were performed promptly.

Q. You say they were performed promptly, now you don't know that only by the statements made by the officials who performed them.

A. Yes, sir, and in the cases of the one in 1908 where I was present myself.

Q. I mean, the length of time that elapsed from the time the rabbits died or were killed and the date on which you received the report of the autopsies?

A. The report was returned in some cases in a day or two, and in some cases it depended, I presume, upon how busy the Bureau was and how soon they were able to return the report, but I could not say exactly any number of days in any case.

Q. What amount of caffeine did you administer to these tested rabbits per dose?

A. In 1908, there was a grain, one grain of caffeine, added to each daily dose, with the Merchandise No. 5.

Q. You gave them Merchandise No. 5 and one grain of

caffeine in addition?

A. Yes, sir, I did.

Q. That was each day, and in one single dose?

A. Yes, sir, in 1911, the caffeine was given in two-tenths (2-10ths) of one per cent solution.

Q. How much was that per dose?

A. Some days under one grain.

Q. How much under one grain?

A. It was equivalent to the Coca-Cola, the same amount of caffeine in the Coca-Cola.

Mr. Miller: I beg your pardon, I didn't catch that.

The Witness: The amount of caffeine which was present, I said, was the same as that in an equivalent quantity of Coca-Cola.

BY MR. SIZER:

Q. How do you know that?

A. The preparation was made for me by Mr. Fuller who is aware of the analysis of the Coca-Cola, and he told me so.

Q. I am not asking you to testify about the analysis of someone else, that somebody else made, you don't know how much caffeine is in any given quantity of Coca-Cola?

A. No, sir, not from my own knowledge.

The Court: I hope the witness will be careful, they are all intelligent men, be careful to limit their answers to what they saw, and not to what other people have told them about anything, because it takes up a great deal of time in explanations of that kind that are unnecessary, and each one shall be limited in his testimony to his own knowledge.

BY MR. SIZER:

Q. State how much caffeine you gave per dose to these rabbits in this particular experiment you are now referring to.

A. Two-thirds of a grain.

Q. How much?

A. Two-thirds of a grain.

Q. How much liquid did you give along with that caffeine?

A. They received liquid in which the caffeine was dissolved, and in addition, one-third of an ounce of water.

Q. What was the liquid in which the caffeine was dissolved?

A. That was in water.

Q. How much water was it dissolved in?

A. Two-thirds of an ounce, an ounce in all.

Q. And you gave two-thirds of an ounce of water and two-thirds of a grain of caffeine?

A. With the addition of one-third ounce more of water, making an ounce in all.

Q. That was a dose?

A. Yes, sir.

Q. An ounce of water and two-thirds of a grain of caffeine?

A. Yes, sir.

Q. Assuming, Doctor, that there is sixteen per cent. of alcohol in Merchandise No. 5, would that alcohol in the dose that you administered to these rabbits that were fed Merchandise No. 5, would it be deleterious on account of the quantity of alcohol contained therein, aside from any other substances?

A. Sixteen per cent. of alcohol in Mer. No. 5, I should judge that the alcohol would have a deleterious effect if that quantity were present.

Q. What would be the effect on the digestion of any animal administering through a rubber tube a substance that it did not and was not accustomed to take, aside from any question of the inherent deleteriousness of the substance itself?

A. I should think necessarily it would have any effect.

Q. Is it a fact that the digestion of a substance or food in the system depends greatly on the desire of the animal for that substance?

A. I don't know, I never say any statement on that subject. I am not prepared to state.

Q. Did you kill any of these rabbits in undertaking to put that tube down their throats?

A. Yes, sir.

Q. How many?

Q. I presume that occurred, I don't know, in half a dozen cases.

Q. You don't remember distinctly?

A. Not exactly.

Q. Those rabbits are the same kind, that is the same breed of rabbits, the same color?

A. No, sir.

Q. Well of what kind, what different kind did you have?

A. They were the ordinary domestic rabbits.

Q. Do you remember what color they were?

A. Yes, sir, some of them were brown and some of them pure white.

Q. That is the white, pink-eye variety?

A. Yes, the albino.

Q. How many of them?

A. I don't recollect but one of the albino, I think there

were two or three additional white rabbits.

Q. And then there were some other kinds of rabbits?

A. And then there were some black rabbits; in so many as we had there, there would be a good many kinds representing the colors.

Q. The rabbits then differed in color and kind, and the black rabbits are different from the brown rabbits?

A. Not as far as I know.

Q. Are you sure of that?

A. They do not differ essentially. They are similar in their general physical appearance.

Q. You say they are similar in their general physical appearance, but if it is not true that black rabbits and white rabbits and brown rabbits are different rabbits, different varieties?

A. No, I am not certain about that. I know there are some varieties. The brown rabbits are more akin to the English hare, I believe. I would not say there was no distinction between them, but not such as to make any difference in experiments of this kind.

RE-EXAMINATION, BY MR. MILLER:

Q. Doctor, you stated with reference to the pages of these publications on which will be found the recorded deaths due to caffeine poison, did you?

A. Yes, sir.

Q. Did you give these pages to the stenographer?

A. The pages?

Q. Yes.

The Court: I think he gave the pages in every instance.

The Witness: I don't think I gave the page in the case of Zenetz. I have not the book here in the case of Zenetz. In the case of Lemaire, I gave the pages.

BY MR. MILLER.

Q. Now then, will you kindly refer to those cases of caffeine cases from which you say the persons recovered, as reported, and give the medical authorities where that appears by page, so that adverse counsel may have the citations?

M. Sizer: I object to that.

The Court: What is the ground of your objection?

Mr. Sizer: The rule is this—the witness may be asked on cross-examination that to test the correctness of the statement, to produce whatever he bases the statement on, but he cannot be asked on direct examination to produce authorities in support of the testimony he gives on direct examination, and for that reason, the authorities are not

prima facie evidence.

Mr. Miller: My point is that was brought out in cross examination—he was asked about these cases, and he said they were reported cases of death and reported cases of poisoning.

The Court: He volunteered the statement about the poisoning, he was only asked about the death cases on cross-examination, and I will sustain the objection.

BY MR. MILLER.

Q. I will ask you whether or not you have at hand citations from the standard medical publications in which there are reported deaths from poison and if you are willing to give them to adverse counsel if permitted?

A. Yes, sir.

Mr. Sizer: He has already given these.

Mr. Miller: Not of the poisoning cases, he was not permitted to do so.

Mr. Sizer: I didn't ask him about those. That don't refer to cases of death.

Mr. Miller: I mean poisoning due to caffeine. I called for that and the last answer was excluded.

Mr. Sizer: I object to that question, I didn't ask him anything about the reported cases of caffeine poisoning, and I submit it is immaterial and improper to ask the witness whether he has such authorities on that subject.

The Court: The exception is sustained. You may ask this witness the direct question whether he qualifies as an expert and whether it is recognized in medical works poisoning from caffeine, and then if they want to, they can call for his authorities.

BY MR. MILLER.

Q. I will ask you if you have a compilation of authorities also on that point.

The Court: The exception is sustained and the answer is excluded.

Mr. Miller: We kindly note an exception.

BY MR. MILLER.

Q. Now, in addition to these autopsies that were performed by Dr. Eichorn and for Dr. Formad, about which you testified on yesterday, state whether or not various other autopsies on these rabbits were performed by Dr. Gallagher, of the Bureau of Animal Industry.

Mr. Sizer: The witness has stated he didn't know about that.

The Witness: I beg your pardon.

The Court: If this witness was present when Dr. Gallagher performed any autopsies, he may state, but he has been cautioned that if he did not know the same were performed or was present, he should not state, he should only state what he knows.

BY MR. MILLER:

Q. Did you know whether certain of the autopsies were performed by Dr. Gallagher, I will ask you if you know that certain of them were performed by Dr. Gallagher.

A. I do.

The Court: Is that from your own personal knowledge, from what you saw?

The Witness: Is it permissible to tell what Dr. Gallagher told me?

The Court: No.

The Witness: I did not observe any of the autopsies perfomed by Dr. Gallagher.

Mr. Sizer: Then I move to exclude the answer.

The Court: The answer is excluded and the exception sustained.

BY MR. MILLER:

Q. Did you receive from the Bureau of Animal Industry a list showing that any of the animals were examined by Dr. Gallagher, and is so, I wish you would give the number —I ask for that because they were sent over, and I am going to introduce Dr. Gallagher when comes as to that, he is on his way here.

The Court: This testimony is entirely surperfluous. If Dr. Gallagher is going to testify to that.

Mr. Miller: But I have to get the numbers.

The Court: This witness has been asked to file a list with the number.

Mr. Miller: That has reference to those on which autopsies were performed by Drs. Eichorn and Formad.

BY MR. MILLER:

Q. But I will ask you to supplement that list which adverse counsel called for yesterday, by a list of the rabbits on which Dr. Gallagher, or on which you were informed Dr. Gallagher performed autopsies, and show opposite these numbers the numbers which were reported back of the animals on which Dr. Gallagher was reported to have performed autopsies.

Mr. Sizer: Your Honor, I object to that.

The Court: Yes, I sustain the objection. It is simply

calling for his opinion. He has stated that he did not know what Dr. Gallagher did.

BY MR. MILLER:

Q. I will ask you to file a list or a supplemental list in addition to the one called for yesterday, by numbers of all other rabbits that were sent to the Bureau of Animal Industry for post mortem examination during the years 1908, 1909, 1910 and 1911; will you do that?

A. Yes, sir.

Mr. Sizer: With reference to the animals sent by Doctor Morgan to the Bureau of Animal Industry?

Mr. Miller: Yes.

Mr. Sizer: Well, that is all right.

BY MR. MILLER:

Q. Now, state if you know Doctor Gallagher.

A. Yes, sir.

Q. And what was he engaged in at the time these post mortem examinations were being held on rabbits that you experimented on?

A. What was his business.

Q. Yes.

A. He was a regular employed member of the Bureau of Animal Industry and in the Pathological Division.

Q. Was there but one Doctor Gallagher there?

A. B. A. Gallagher, he was the only one.

Q. Now, as to these mixtures that were received from Doctor Fuller, I will get you to state whether or not in each instance where the mixture was received you were told by Doctor Fuller the contents of the mixture as respects caffeine, Coca-Cola, syrup, and Merchandise No. 5.

Mr. Sizer: I object to that.

Mr. Miller: The object of that is that I am trying to connect it up, I am going to introduce Doctor Fuller to show he told him as to what was in it.

The Court: Well, I will let that go in.

The Witness: Yes, sir.

The Court: The only purpose in admitting it is not for the purpose of showing what was in these mixtures, but of identifying them as the same ones that Doctor Fuller may testify to when he is examined, it is to connect up, that is all.

BY MR. MILLER:

Q. In your original cross-examination when you referred to having given certain quantities of caffeine and of Coca-Cola syrup and of simple syrup and of Merchandise

No. 5, I will ask you to state whether or not you took Doctor Fuller's statement as reported to you by him as being correct, and whether you observed that in the feeding of the rabbits.

A. Yes, sir.

Q. Now, you stated that in perhaps a half a dozen cases there was death in inserting the tube in the stomach of the rabbits.

A. Not in these particular rabbits but in others.

Q. Not in these particular rabbits?

A. No, sir.

Q. In that kind of cases what would be the minifestations, if any, when the rabbit was killed, as to the cause of death?

A. The autopsy would show the tube had entered the air passage instead of the stomach.

Q. And these rabbits, when they were examined on autopsy, were there any indications of deleterious results from the tube having entered the air passage?

A. There was in one.

Q. In only one?

A. Yes, sir.

RECROSS-EXAMINATION, BY MR. SIZER:

Q. Doctor, did you perform any autopsies on these rabbits that you killed in trying to put the tube down the throats?

A. Just that one.

Q. That was the only one you performed the experiment on, was it?

A. Yes, sir.

Q. But I mean these rabbits that died while you were trying to put this tube down their throats, whether there were any autopsies performed on them.

A. No, sir. The experiments had not begun.

Q. Then you do not know what it was that caused the death of these rabbits?

A. Yes, sir.

Q. How do you know?

A. They died immediately; I know from the symptoms.

Q. Well, you undertook to state on re-examination that the rabbits died from a particular cause. All you know now is that they died while you were trying to put the tube down their throats?

A. I know they died as a result of the tube not going down the throat and into the air passage.

Q. You say you know that because the tube went down the air passage?

A. Because of the tube going down the air passage instead of into the stomach.

Q. You know that?

A. Yes, sir.

Q. Well, how do you know it?

A. Well, I know it because of the suffocation.

Q. Might they not have died from nervous shock caused by that tube being put in them?

A. No, sir.

Q. How do you know?

A. Because of the suffocation.

Q. What would be the symptoms that would be manifested in cases of nervous shock from the tube being thrust down through the esophagus?

A. I can't conceive of any such condition, can't conceive of a rabbit being so shocked.

Q. You can't conceive of a rabbit being shocked?

A. No, sir; there is no shock connected with the injection of the tube. It is unattended with any shock of any kind.

Q. You are not prepared to say what would be the symptoms that would attend a death from that cause?

A. I am unable to conceive of a case of that kind.

Q. And therefore you are unable to say what would be the symptoms?

A. Yes, sir.

The Court: I think that has gone far enough.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. Doctor, I don't know that I clearly remember what you stated upon yesterday as to the receipt of this Coca-Cola syrup; I believe I understood you drew part of it yourself and the remainder was delivered to you by the keeper of the storehouse in the department.

A. Yes, sir.

Q. From what receptacle did you draw the Coca-Cola syrup, which you used?

A. The original keg.

Q. What sized keg?

A. This keg here. (Indicating.)

Q. You mean the keg on exhibition?

A. Yes, sir.

Q. Or one like that?

A. Yes, sir.

The Court: As I understand you, you conducted experiments with plain syrup, sugar and water, as a part of your general series of experiments on these rabbits.

The Witness: Yes, sir.

BY THE COURT:

Q. Well, now I would like to have you tell us the results of that. You never stated that in your testimony. I would like to have that.

Mr. Miller: I asked for that chart to be filed but it was ruled out yesterday.

The Court: I don't understand the experiment appears on it.

The Witness: I think, your Honor, Mr. Sizer asked me about this yesterday, these are the same experiments which I testified in regard to yesterday, three experiments.

The Court: Just give the results; just give the results as you did in the other cases.

The Witness: The three rabbits were employed and they were given daily plain syrup, two-thirds of an ounce with one-third of an ounce water, making an ounce in all. The three rabbits lived fifty-nine days. That brought the experiments up to March the 6th when I had to close it up and so the rabbits were sent over to the Bureau of Animal Industry for autopsy.

The Court: You mean they were killed.

The Witness: They were not killed by me but they were killed there, they lived fifty-nine days. In that time they lost an average of 215 grams.

The Court: What per cent. of weight?

The Witness: 15.5 per cent. of gross weight—they lost an average of 15.5 per cent. of gross weight.

The Court: You say they lost an average of 15 per cent. of gross weight?

The Witness: Yes, sir, of their body weight, of the three combined rabbits—no, each rabbit lost 15 per cent. of its weight.

The Court: If you will indicate on your list there the rabbits that were sent there, will you do, that, those three rabbits?

The Witness: They were sent also to Doctor Formad. to the Bureau of Animal Industry.

The Court: Well, just identify them by number.

The Witness: Yes, sir. I will include them on the same list.

BY MR. SIZER:

Q. Did they lose in weight, or did that loss in weight take place uniformly every day, from day to day?

A. No, sir.

Q. In any case, was the loss regular and uniform?

A. There was a variation from day to day.

Q. Did it increase as a general rule towards the latter part of the experiment?

A. No.

Q. At what particular period in the experiment was the loss in weight greatest?

A. I could not say definitely, the loss is pretty nearly uniform—there is not any particular difference.

Q. Pretty near uniform during the entire period?

A. I did not mean to say there was no daily variation, there was a considerable daily variation.

Q. Well, assuming that loss was practically uniform, how long would it take the weight of the rabbit to be reduced to nothing if that course was pursued?

The Court: That is merely mathematical calculation.

BY MR. SIZER:

Q. Well, were these rabbits weighed at the same hour every day?

A. No, sir.

Q. Were they fed at the same hour every day?

A. I would not say—no, I don't know whether they were or not.

Q. Were they weighed before feeding or afterwards?

A. Always weighed before feeding.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. You have charts showing all the animal experimentations, I understand.

A. Yes, sir.

Mr. Miller: I can offer these charts, — I offer them now, the one where the rabbits were fed on the simple syrup and also offer to file the others as exhibits.

The Court: They have been excluded for the reasons already stated.

BY MR. SIZER:

Q. Did you weigh these rabbits yourself from day to day after the feeding began?

A. I weighed them—I might not have actually put the weight on the scales but I stood there and watched it.

Q. Well, you saw them weighed?

A. Yes, sir, it was done right in my presence.

The Court: Does that general chart show the simple syrup experiment?

Mr. Miller: I don't think this one does; those that we offered in evidence yesterday do.

The Court: Then he may put that line of simple syrup

experiment on that general chart.

Mr. Miller: I will ask the witness to do that, then.

Thereupon,

DR. J. W. HOOVER,

of lawful age, was produced as a witness on behalf of the Government and being first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Dr. Hoover, how old are you?

A. Thirty-five.

Q. And what is your profession?

A. I am a chemist.

Q. Connected with what department or institution, if any?

A. I am chief of the Drug Inspection Laboratory, Bureau of Chemistry.

Q. At Washington?

A. Yes, sir.

Q. State, Doctor, whether or not you brought down with you from Washington the keg that has been introduced in evidence as an exhibit to the deposition of Doctor Fuller in this case.

A. I did.

Q. Did you bring it down intact?

A. I did.

Q. State whether or not that keg is now partially filled.

A. It is.

Q. Where, when and under what circumstances was that keg purchased?

A. That keg was purchased in June, 1910, for the purpose of experimental work, for Doctor Morgan.

Q. What date in June was it delivered into the warehouse of your Department at Washington?

A. On June 13.

Q. Was there one or two kegs purchased at that time?

A. There were two 5-gallon kegs.

Q. That is one of them that is here?

A. Yes, it is.

Q. State from where you procured that keg, at the time you started down here with it.

A. From the store room, Bureau of Chemistry, Division of Drugs.

Q. State whether or not any portion of the seized mixture of Coca-Cola in this case was received at the store house and came under your observation shortly after the seizure.

A. There was.

Q. I will get you to state whether or not any portion of that mixture was transmitted by you or under your supervision to Doctor Boos of Boston.

A. There was.

Q. How was that mixture sent, in what kind of container was it sent to Doctor Boos?

A. The mixtures was placed in a bottle and forwarded to Doctor Boos of Boston.

Q. By what means?

A. By express.

Q. Probably how soon after the seized product was received into Washington?

A. I don't just exactly understand that question.

Q. I say, probably how long after the product that was seized was received at the store house in Washington?

A. It was probably only a few days. The exact date, I would not be able to state.

Q. State whether or not a portion of the contents of this keg that is now in evidence was utilized in the feeding of the rabbits on which Doctor Morgan experimented.

A. There was.

Q. State whether or not the contents of this—

A. (Interrupting) Pardon me—I would like to modify that statement. I would like to state that a portion was taken from this keg and delivered to Doctor Morgan.

Q. This particular keg that is now in evidence?

A. Yes, sir.

Q. State whether or not a portion of the contents of this keg as it was originally purchased is still in the keg.

A. Yes, sir.

CROSS-EXAMINATION, BY MR. SIZER:

Q. The sample that you sent to Doctor Boos, Doctor Hoover, was taken, I believe you say, from a keg that was received in Washington by express.

A. A portion from the original seizure.

Q. That is, you do not know that it was the original seizure, but you simply know that the keg came to Washington?

A. Came; yes.

Q. How do you know that?

A. I don't just exactly understand the question.

Q. I say, how do you know that it was the keg that was originally seized.

A. I say I don't—it was that that was received; that was received.

Q. Received in Washington?

A. Yes.

Q. Of course you were there present when the seizure took place?

A. I don't know anything about that at all.

Q. That is the same keg from which samples were taken by Doctor Fuller and Doctor Emery for analysis and analyses?

A. Yes, sir.

Q. And this other keg from which samples were delivered to Doctor Morgan, you say that was purchased by you in June, 1910?

A. It was purchased by the inspector in June, 1910.

Q. You did not purchase it personally?

A. No; I did not purchase it personally.

Q. You do not know where that inspector got it?

A. Yes, I do.

Q. How?

(The witness here refers to memorandom.)

Mr. S[illegible] I do not want you to testify to any report the inspector made to you. I want to know if you personally know where the inspector got that keg.

The Court: If he got a bill for purchase, and paid it, that would be all right.

BY MR. SIZER:

Q. Have you got a bill?

A. Yes, I have a bill here dated the 6th month and 13th day, 1910, "Department of Agriculture, Washington Wholesale Drug Exchange, Dr. Two 5-gallon kegs Coca-Cola," and I also have a record here of the inspector's slip, it is called, with that, and additional information to that effect.

Q. So that the information you have or the knowledge on which you base that statement that this keg was purchased, this particular keg was purchased by a particular inspector, consists merely in the fact that you have a bill for a keg of Coca-Cola from a certain house in Washington, and that you have the inspector's report that he bought a keg of Coca-Cola at a certain time?

A. That is was received at a certain date.

Q. What he bought at that date?

A. Yes, sir; and that it was received at that date.

Q. How much of the contents of that keg did you send to Doctor Boos?

A. There was about, I think, two liters. There was a quantity, about three quarts.

Q. About how much?

A. About three quarts.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. Now, when counsel asked you as to this keg, you mean the keg that is now in evidence or do you mean part of the seizure?

A. I mean the keg which is now in evidence.

Q. Was there a part of this keg drawn off and sent to Doctor Boos?

A. No, sir.

Q. Now, then, this particular keg that is now before you, as I understand, was one of two that came in the 13th of last year?

A. That is correct.

Q. This shipment that was sent to Doctor Boos,—state if you recall whether or not that was taken from the keg that was sent up or whether or not that was taken from jugs.

A. That was taken from jugs.

Q. That was sent up by Inspector Lynch?

A. Yes; from the jugs.

Mr. Miller: That is all, I believe.

(Witness excused.)

DR. H. C. FULLER

was recalled on behalf of the Government and testified further as follows:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Dr. Fuller, have you heard the examination this morning of Doctor Morgan?

A. Yes, sir.

Q. I will get you to state whether or not, in delivering the mixtures, Merchandise No. 5 and the Coca-Cola syrup and any other ingredients that he received from you to feed these rabbits with on which he experimented when you gave him information as to the contents of such mixtures, whether or not that was truthful and to your knowledge known to be correct.

A. Yes, sir.

Q. That was made up under your supervision?

A. Yes, sir.

Q. By you. State whether or not a portion of the product originally seized was sent or drawn out of the original receptacle in which it was received, for the purpose of being sent to Doctor Boos at Boston.

A. It was.

Q. Now, Dr. Fuller, I am going to ask you if you are prepared to take the contents of this keg that is now in evidence and which Doctor Hoover has shown was received in

the store house on June 13 last, and made an analysis of the contents of this keg and tell us whether or not it compares and how it compares with the Coca-Cola mixture which you have previously analyzed. Are you prepard to do that?

Mr. Sizer: I object to that question, may it please your Honor. I do not think that it relevant or competent in any way.

The Court: I suppose that is for the purpose of showing that the syrup fed the rabbits is the same as this.

Mr. Sizer: He asked the witness whether he was prepared to make it.

Mr. Miller: I ask him whether he was prepared and qualified to do it.

Mr. Sizer: I submit that is entirely incompetent and immaterial.

The Court: The objection is overruled.

BY MR. MILLER.

Q. State how that is, Doctor.

A. I am.

Q. I will get you to state whether or not you will do that, and whether or not you are willing for any of the chemists who are present to witness your experiments and your analyses of this mixture.

A. I am.

Mr. Miller: On behalf of the libellant in this case, we invite chemists that we know are present on the other side, to take a part of this mixture for the purpose of checking Doctor Fuller's experiments in this behalf in his analysis. We are perfectly willing to give them part of the contents of this keg, if they desire. We simply desire to go on record as making that offer.

Mr. Sizer: I do not know exactly what kind of testimony that is but I am objecting to it, anyway.

The Court: The objection is overruled. The intervenor claimant does not raise any question that the Coca-Cola syrup was anything but the ordinary Coca-Cola syrup—if it does not raise that question, this will be unnecessary, and entirely superfluous.

Mr. Sizer: I will just state that so far as I know we have no question of that kind to raise.

The Court: Until any question of that sort is raised, then it will be unnecessary to have the analysis made.

Mr. Sizer: I have not seen anything yet to indicate that we would care to raise any such question.

Mr. Miller: I thought from the cross-examination of these witnesses that has been going on that it tended to do that.

The Court: You have shown that it came from a regular commercial house, wholesale house, and until some question is raised I think it is unnecessary.

Mr. Miller: There is just this point: It requires about three days to make a careful analysis, and we shall be very glad to be relieved from that.

The Court: I do not think there is any necessity for it unless that question is raised, that it is not the ordinary Coca-Cola syrup.

Mr. Miller: Very well.

BY MR. MILLER.

Q. Doctor Fuller, state whether or not you have ever known or heard of any products being sold under the name of Coca, or any yield of this shrub from which the coca leaf, c-o-c-a, the coca leaf, is taken, being bought or sold in the United States under the name of coca, except the leaf.

Mr. Sizer: That is going back to the same line of examination—

The Court: I do not recall whether this witness was asked this specific question. He was asked under what name the leaf was sold, but I do not recall whether this specific question was asked. You may go ahead.

Mr. Sizer: Just read the question.

The Court: I think the witness caught the question.

The Witness: Yes, sir; I understand the question. No, I know of no other article.

BY MR. MILLER.

Q. Is there or not to your knowledge any other product sold except the nut that was exhibited in evidence by you, under the name of kola, to your knowledge?

A. No, sir.

CROSS-EXAMINATION, BY MR. SIZER.

Q. Did you offer—or, you did offer some bottles of liquid here the other day, Doctor, with certain labels on them.

A. You mean those fluid extracts?

Q. Yes?

A. Yes.

Q. You offered those bottles in evidence, I believe.

A. Yes.

Mr. Sizer: That is all.

REDIRECT EXAMINATION, BY MR. MILLER:

Q. What is the difference between that and the coca itself?

A. The coca is what we know as the crude drug, and the fluid extract is the solution of this drug in alcohol and water, made up so that it can be administered medicinally.

(Witness excused.)

DR. H. H. RUSBY,

previously sworn, was recalled for further

DIRECT EXAMINATION, BY MR. MILLER.

Q. Doctor Rusby, in the country from which this leaf of the coca plant or shrub is exported and where it is grown, I will get you to state whether or not anything else is exported under the name of coca except this leaf.

A. Nothing.

Q. About which you testified in chief.

Mr. Sizer: I recall distinctly that he asked this witness that question.

The Court: I think that this witness has been asked fully about that,—have you not, Doctor?

The Witness: I don't remember that the particular question—whether anything else is exported. He asked me whether it was exported under any other name, but not whether anything else was exported under this name.

BY MR. MILLER:

Q. I will ask you whether or not anything else is exported into this country under the name of coca except this leaf?

A. There is not.

Q. State what are the valuable constituents of the elements of value in this leaf and for which it is imported.

A. Cocaine.

Q. What is the effect of cocaine on the human system?

Mr. Sizer: May it please your Honor, that has all been gone into, I submit, on the original examination of this witness.

Mr. Miller: I do not think I asked him about it at all. If I did, I withdraw the question.

The Witness: No, your Honor; he asked me about the effect of caffeine on the system but not about cocaine.

The Court: Yes, I recall that. What is the materiality of that? If you prove that it is a constituent,—what is its materiality as to this?

Mr. Miller: I desire to show how it affected persons and if I show it has one effect and caffeine has a different

effect, I think that is certainly circumstantial proof of misbranding in this case.

The Court: You may proceed.

The Witness: Give me the question again, please.

BY MR. MILLER:

Q. What is the visible effect of cocaine on the human system?

A. Cocaine is, in the first place, a local anesthetic.

Q. What do you mean by that?

A. It destroys the sense of feeling in the part in which it is put. If you put in on the lip or tongue you will be unable to feel anything in a few minutes afterwards, for a minutes afterwards. If you put it on the eye, you will be unable afterwards to feel any pain in that eye, so that an operation can be performed on the eye without the patient being sensitive. On the system itself it has the effect of powerfully stimulating the intellect and the mortor muscles. A man is more inclined to be active, at least for a time, and his mind is more active and he is rendered wakeful. It takes away the feeling of weariness from the muscles.

Q. Is there or not anything else imported into this country under the name of kola, or the nut or the kernel, which was introduced in evidence as exhibit to Doctor Fuller's examination?

A. There is not.

(Witness excused.)

DOCTOR L. F. KEBLER,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Dr. Kebler, what is your age?

A. Forty-seven.

Q. What is your profession?

A. I am a chemist and physician.

Q. Where were you educated, Doctor?

A. In the University of Michigan; I graduated from the School of Pharmacy, Michigan, and the literary department in that school. I devoted my time chiefly to chemistry and allied sciences. I took some special courses in medicine in the Jefferson Medical College.

Q. Located where?

A. In Philadelphia, and am a graduate from the School of Medicine, George Washington University, at Washington, D. C.

Q. When did you attend school at the University of Michigan.

A. I entered the University in 1887 and continued for five years. I taught there one year.

Q. What branch did you teach in the University of Michigan?

A. Chemistry.

Q. And while you were attending the Jefferson Medical College, were you partially engaged in any other work? If so, what?

A. Yes, sir, after leaving the University of Michigan, I engaged with a firm at Philadelphia engaged in the manufacture and dealing in drug products.

Q. What is the name of that firm, please?

A. Smith, Blan, French & Company.

Q. What particular character of food products is that firm engaged in manufacturing?

A. While I was in their employ, they started into manufacturing the so-called infant foods, and at that time, and in so doing, it was necessary for us to make many examinations and experiments with food products.

Q. Were you, or not, engaged in the investigation and analysis of food products, and the constituents thereof, during the period of your connection with that firm?

A. I was, in part.

Q. And how long were you engaged with that firm?

A. A little over ten years.

Q. During this ten-year period, were you more or less engaged in this experimental work?

A. Yes, sir; experimental and analytical.

Q. And analytical?

A. Yes, sir.

Q. While attending the Jefferson Medical College, what courses were you taking there?

A. I took dissection and anatomy, and physiology, and I attended the lectures on therapeutics. I also attended many clinics in Philadelphia under Dr. Denver, John Deaver, of the German Hospital, and another hospital — I do not recall the name of it just now; it is an American Hospital.

Q. What do you mean by Clinics, Doctor?

A. That is to go to the lectures of the professors where they give actual demonstrations on human beings in connection with different diseases; for example, one day we would have typhoid cases and another day we would have

an operation for appendicitis, or the removal of a limb, or something of that character.

Q. State whether or not you are a registered practitioner of medicine in the District of Columbia?

A. I am.

Q. When did you sever your connection with this food manufacturer with whom you were engaged ten years in Philadelphia?

A. In March, 1903.

Q. And what position did you take then?

A. Chief of the Drug Division, Bureau of Chemistry, United States Department of Agriculture.

Q. How long have you held the position of Chief of the Drug Division?

A. About four years. The title was changed about four years ago from Chief of Drug Laboratory to that of Chief of Drug Division.

Q. Prior to this change, what was your title?

A. Chief of Drug Laboratory.

Q. And you took that position when you first went there?

A. Yes, sir.

Q. State whether or not you are a member of the American Medical Association.

A. I am.

Q. Have you any official connection with that Association?

A. I am a member of the Council on Pharmacy and Chemistry of that Association, a body that makes investigations of medicinal products and of medicinal foods, as we call them, for the purpose of informing the medical profession relative to the character of these commodities, and whether false and misleading claims and representations are made concerning same.

Q. State whether or not you are acquainted with the substance "C-O-L-A"?

A. I am.

Q. State what that substance consists of as it is bought and sold on the American market.

A. It consists of a crude drug of peculiar form, brownish in color, sometimes called a nut, cola nut.

Q. Are you or not acquainted with the substance coca?

A. I am.

Q. And what does that consist of?

A. A leaf—a crude drug, a leaf brought chiefly from South America, but sometimes from the island of Java.

Q. What is the active principle or ingredient of the coca?

A. Cocaine.

Q. For what is it commercially bought or sold and imported?

A. The leaf.

Q. Yes?

A. Well, it is probably imported largely for the manufacture of cocaine. Some of the coca leaves are also used in the manufacture of other medicinal products: The fluid extract of coca, for example.

Q. What is the difference between the coca in the crude state, that is, the leaf and the fluid extract?

A. The fluid extract is in liquid form, containing the active principles of the coca leaf.

Q. Have you ever known of anything else, any other drug, being bought or sold under the name c-o-c-a, except this product about which you have been speaking, in which cocaine is the chief active ingredient or principle?

A. No, sir.

Q. Have you ever known of anything else being bought or sold under the name kola by standard or reputable dealers of this nut or kernel which you have described?

A. Not a solid preparation, no, sir.

Q. Prior to the seizure in this case and while you were a member or while you were connected with the Bureau at Washington, I will get you to state whether or not you made any investigation or traveled over any section of the country with the view as to informing yourself as to the manufacture, sale and consumption of the product seized, namely, Coca-Cola.

A. I have.

Q. In what cities did you visit during that investigation?

A. Norfolk, Richmond, Jamestown, Atlanta ——

Q. (Interrupting.) Give those by states. Those first three were in Virginia?

A. Yes, sir; Atlanta, Georgia; Chattanooga, Tennessee; Montgomery, Alabama; New Orleans, Louisiana; Jackson, Mississippi; St. Louis, Missouri; Cincinnati, Ohio; Detroit, Michigan; Philadelphia, Pennsylvania; and New York.

Q. While in these various cities and passing through the sections adjacent thereto, state whether or not you were engaged in observation work as to the consumption and sale of Coca-Cola.

A. I was.

Q. State whether it was sold or dispensed indiscriminately, or how.

A. It was sold — it was dispensed to all comers at soda

fountains in all the cities that I have named.

Q. State whether or not there was any distinction as to class; that is, as to young, old, nervous or robust people?

A. No, sir, I saw no difference.

Q. State whether or not it was consumed by the classes that I have indicated.

A. Yes, sir; they consumed it freely.

Q. State whether or not that included school children and young persons of immature years.

A. I have seen children at the fountain drinking Coca-Cola, from four years old and upwards.

Q. Now, did you on the occasion of this trip of inspection visit the plant of the Coca-Cola Company, the claimant in this case, in Atlanta, Georgia?

A. I did.

Q. Did you there meet any official of the Coca-Cola Company, and, if so, who, and what was his title?

A. I met two of them at that time, Mr. Howard Candler, and the president of the Company, Mr. Asa Candler.

Q. What was Mr. Howard Candler's position at that time?

A. Manager, I was told.

Q. State whether or not you communicated to Mr. Howard Candler and to Mr. Asa Candler, the president, the object of your visit there.

A. He knew my mission, and of course I told them; and I told Howard Candler, but I did not tell Mr. Asa Candler because they knew in advance.

Q. State whether or not you were shown through the factory, from the basement to the top of the factory.

A. I was shown through the basement, the first floor and the second floor, in part; that is, the second floor in part.

Q. I will get you to state whether or not Mr. Asa Candler manifested pleasure or otherwise at your visit on that occasion.

A. Oh, he was very pleasant to me, but he was rather put out because of certain things that had developed in connection with Coca-Cola, because of the activity of certain departments of the Government, and he did not hesitate to say so.

Q. Now state the sanitary conditions existing at the time you were there and when you met Mr. Asa Candler and Mr. Howard Candler — you say they were informed as to your coming — state what features impressed themselves on you as being unsanitary.

Mr. Sizer: What was the date of the visit, as he gave it, Mr. Stenographer?

The Stenographer: He did not give it.
Mr. Sizer: I thought you had given it.
The Witness: No.

BY MR. MILLER:

Q. State what unsanitary features, if any there were, impressed themselves on you.

Mr. Sizer: I object to that, your Honor. It is not proper.

The Court: The objection is sustained.

BY MR. MILLER:

Q. State, Doctor, how the mixture of Coca-Cola was prepared, if you know and observed and were shown by Mr. Howard Candler during the course of that tour of the factory.

A. There was a kettle on one side of the building, the south side, and at the south side of that kettle — that is, the kettle was just away from the wall a little ways, and between the wall and the kettle, a copper kettle, steam-jacketed — there was a platform. The top of that kettle was either level or just below the surface of this platform. There was a stairway that led up to this platform which was used — that is, the platform was used for the purpose of dumping sugar, chiefly, into this kettle. The barrels were hoisted up on to this little platform, the head knocked out and the sugar dumped into the kettle.

Q. That mixture that was made in the kettle was what?

A. Was a syrup consisting of water and sugar. To this was then subsequently added caramel; that is, in this same kettle, or burnt sugar, as it is sometimes called.

Q. And what was then done with this syrup?

A. That is what I saw mixed together, and the sugar and the caramel. It was then heated to boiling, after which it was run out into a cooler. That is, the cooler was used when it was found necessary, when the demand was large, but when the demand was not large this cooler was not used. After passing through this cooler it was run into vats strung just below the floor on which the operations were conducted.

Q. In what room of the building was that that these vats were strung?

A. They were in the basement.

Q. And how near were they to this floor above?

A. Oh, I should say from six inches to a foot below the joists, as we say.

Q. What was the proximity to the street on the outside of the building?

A. They were arranged all around the building, all around the basement underneath the floor and were right up close to the sides of the building adjacent to the windows, not all of them were adjacent to the windows, but some of them.

Q. And when this cooling tank was not used, how was the mixture cooled?

A. Just by natural — just by time, natural evaporation and atmospheric conditions.

Q. After being run into these vats?

A. Yes, sir.

Q. Now, were there any connections with the outside between these vats that were suspended near to the windows?

A. The windows were open.

Q. They were open?

A. Yes, sir.

Q. Approximately what size were those windows?

A. Approximately one foot high and two feet wide.

Q. How were the windows — that is to say, when they were open?

A. I did not observe that point.

Q. Did I understand you to say they were open?

A. They were open. That is, those that I observed.

Q. Who was charged with the mixing of the sugar and the dumping of it into the kettle?

A. There were several negroes there that were doing the work. As far as I could see, no one had exclusive charge of any particular operation; but they took part as the work seemed to demand.

Q. Where did this negro stand, the one that did do the knocking out of the heads and the dumping into the kettle of the contents of the barrels?

A. He stood upon that platform opposite the barrel.

Q. In the course of your investigation there, did you observe any caffeine, and if so, in what form was it?

A. Yes, I observed caffeine there.

Q. Well, in what form?

A. In tin cans, crystalline, solid caffeine, the crystalline forms that always or usually come on the market.

Q. State whether or not it resembled the caffeine that has been exhibited here, a sample of which has been exhibited here, in connection with Mr. Fuller's evidence.

A. It looks like it. Of course, commercial caffeine varies some as to the manner of manufacture.

Q. In what quantities did you observe this caffeine present in that factory at that time?

A. I saw a number of tin cans, the exact number I could not say.

Q. Approximately what amount of caffeine would these cans contain?

A. To the best of my recollection they would hold about ten pounds.

Q. Did you or not observe any spider webs or anything of that kind in connection with your inspection there, near to these vats?

A. Oh, yes; the basement was quite commonly festooned with spider webs and things of that kind, and flies in the spider webs.

Q. How near were they to these vats that were suspended?

A. Oh, some of them overhung the vats. That is to say, they were attached part to the building and part to the vats.

Q. How close to the vats were these spider webs?

A. They were just overhanging some of them, and others were attached to parts of the building. They were all over.

Q. How close were those that were suspended over the vats from the vats themselves, from the tops of the vats?

A. They were practically over the vats.

Q. I understand — there might have been a hundred feet ——

A. Oh,—the lower part of the spider web was attached directly to the tank in which the Coca-Cola mixture was being cooled, within an inch or two inches.

EXAMINATION CONTINUED,

BY MR. MILLER:

Q. State how the negro help there in that building was clad on that occasion.

A. Oh, it was very poorly clad, the time I was there was in August and they had on virtually nothing but an undershirt and a pair of trousers, and shoes of course.

Q. State whether or not they were perspiring freely.

A. Oh, yes.

Q. Were you there or not afterwards, after this first visit to this factory, at a subsequent date and prior to the seizure in this case?

A. I was.

Q. Were you there also in connection with any one?

A. My wife was with me at that time.

Q. I mean, did she go to the factory?

A. She did.

Q. With you?

A. Yes, sir.

Q. State who you met there then as the representative of the Coca-Cola Company.

A. Mr. Howard Candler.

Q. I will ask you to state what was the condition of the steps that led down from the basement floor into — or, I mean, from the main first floor into the basement.

A. They were very filthy. They were covered with this sugar residue and dirt that accumulated in the factory. Of course, in operating a place of that kind the sugar and everything mixed sticks together and the men walk over the littered up floor and the sugar floor down in that basement, and it simply produces an accumulation of filth and dirt, several inches in places, and even the railing that was used to go down the stairway was covered with considerable of this filth and dirty material.

Q. State whether or not on this second occasion when you were there you observed any caffeine, and if so, in what kind of containers.

A. Yes, sir; there was caffeine there. If my recollection serves me correctly at that time there was a drum of caffeine there which had a slightly different appearance from the caffeine that is usually met with in commerce. It was more compact but not as white a product as the ordinary article produced. To the best of my recollection, one of these drums would hold approximately two hundred pounds.

Q. Did you or not open either of the drums, or was it opened in your presence so you could observe whether any of the contents had been removed?

A. I saw the drum open — I don't remember whether it was opened in my presence, actually opened, but the lid was tilted off and it was open, and I saw the drum's contents.

Q. State whether or not the contents of this 200-pound drum, any portion of it had been removed.

A. It was not full.

Q. Do you remember whether or not there was more than one of the drums there at that time?

A. I don't recollect more than one.

Q. And where was that with respect to this kettle?

A. It was directly north of the kettle about, say twenty feet.

Q. Now, were you or not there also just before the seizure in this case was made?

A. I was.

Q. On what date?

A. The 20th of October, if I recollect correctly.

Q. Of 1909?

A. Yes, sir.

Q. Who, if any one, went there with you on that occasion?

A. Mr. Lynch, Inspector Lynch.

Q. Is that the witness J. L. Lynch who has testified here?

A. Yes, sir.

Q. And where did Mr. Lynch go to from there?

A. Well, he started for Bristol.

Q. At that time state whether or not you observed any caffeine in the factory, and if so, in what form.

A. I observed some drums with the caffeine in them. At that time I took a sample of the caffeine.

Q. You took a sample of the caffeine?

A. Yes, sir.

Q. Was it caffeine?

A. Yes, sir.

Q. State what kind of barrels were used for the barreling of the Coca-Cola mixture.

A. Well, they used some new barrels; they used second-hand barrels, whisky barrels and alcohol barrels. The kegs, I think, were mostly new; at least, I don't remember seeing any old ones.

Q. What was done with these second-hand barrels, such as the alcohol barrels and whisky barrels, if you saw them being prepared for use?

A. They had a number of these second-hand barrels in the basement, and the workmen there took these barrels, I saw them do it, and painted them red. Before doing so, however — I will not state that positively, whether it was before or after, but they placed them over a pipe and run steam through them for a few minutes, the one I observed or the only observation I made was about three minutes.

Q. I will get you to state whether or not any tag or label or pictorial design was then put on the barrels.

A. A design or label of the kind on this keg here (indicating keg in court room) was put on the barrels before shipping, not in that cellar, however—at least, I saw none applied down there in the cooperage.

Q. Now, I present to you with a purported duplicate or reproduction of the Coca-Cola trademark and will ask you whether or not that character of design was placed on these barrels before they were supplied with the Coca-Cola and sent out.

A. Yes, sir; that really looks like it.

Q. I will get you to file that as Exhibit No. 1 to your testimony.

A. I will do so.

Q. Now, I will get you to state whether on these three occasions when you were there in the factory you observed whether or not the help there, including the negroes, were chewers of tobacco.

A. Yes, sir; I observed some of the help expectorating an amber fluid.

Q. I will get you to state whether or not there were any cuspidors or spittoons provided, and if not, where they expectorated.

A. I saw no cuspidors; the whole building appeared to be a cuspidor.

Q. Where did they spit?

A. They spat on the floor, sometimes on the platform; any place they happened to be.

Q. Now, state whether or not, clad as those employes were, there would necessarily in the operation of the work be given off from their bodies any germs.

Mr. Sizer: I object to that.

The Court: On what ground, Mr. Sizer?

Mr. Sizer: I think it is a mere question of opinion. He has stated the surroundings, he does not undertake to testify how many germs were actually given off but to express an opinion whether or not ——

The Court: (Interrupting) Have you ever made any study of that question about germs?

The Witness: Yes, but not in this particular case.

The Court: Have you made a study of that particular question?

The Witness: Yes, sir; I have studied bacteriology.

The Court: Then the exception will be overruled.

Mr. Sizer: We desire to reserve an exception.

The Witness: The perspiration would fall off the bodies and foreheads and they would wipe their foreheads and their faces with their hands and it is a well recognized fact that everything they touched, anything that comes from the body, contains more or less germ material.

MR. MILLER:

Q. And as they would wipe the perspiration from their foreheads, these employes, what became of it, what did they do with it?

A. They just simply — it is usually done, with workmen of that type — simply wiped it off and let it go wherever it would. Some of it, of course, would go on the floor or whatever operation they were at.

Q. How were the closets, if any there were in the building, ventilated, from the inside of the building or outside?

A. They were ventilated into the building.

Q. Into the building?

A. Yes, sir.

Q. Now, did you see the exhibit or the contents that were contained on the paper that was used for filtering a portion of the contents of one keg that was seized as a part of this mixture, that was seized in this case, the subject of this libel?

A. Yes, sir.

Q. As it was presented by Doctor Fuller?

A. Yes, sir.

Q. State whether or not in the ordinary conduct of the business as you saw it on that occasion — I mean, in your three visits and each and all of them to this factory—there was or likely would have been contained in this mixture germs of various kinds that resulted from the operations as they were conducted.

Mr. Sizer: Now, we object to that question.

Mr. Miller: And I will add to it ——

Q. (Continuing) If so, state why.

Mr. Sizer: He has stated the surroundings there and has given his opinion as to the existence of germs and this is a mere matter of opinion and inference as to whether this product contained any germs.

Mr. Miller: I submit that is a matter of technical and scientific knowledge. He said he observed the conditions and he knows as to bacteriology, and I think it is a proper question.

The Court: Have you made a study of the locomotive qualities of germs of that character, that fly around?

The Witness: Yes, sir, I have made these observations to a considerable extent, I can't qualify as a bacteriologist in general but I know very well that the germs are carried by ——

The Court: (Interrupting) I didn't ask you what you know. Have you made any special study so as to qualify you to express a scientific opinion as to that matter?

The Witness: Yes, sir.

The Court: How much study have you had?

The Witness: I have examined material that would float around in a room with a view of finding out how many bacilli were in the room.

The Court: And how far they would fly?

The Witness: I don't know as I could answer that question, how far they would fly.

The Court: You never made any study as to the spread-

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ing qualities of the germs?

The Witness: It depends entirely upon the temperature and the wind ——

The Court: I didn't ask you that. You never made any study as to the spreading of germs?

The Witness: No, sir.

The Court: Then the answer is excluded.

Mr. Miller: Kindly note an exception.

The Court: On the ground that this witness is not qualified as an expert.

BY MR. MILLER:

Q. How many employes engaged in the basement of the building and on the first floor, where there was this mixing of the original mixture and the cooling of the Coca-Cola syrup, were young boys?

A. There were quite a number there, I don't remember the exact number. Mr. Candler told me that they employed about five negroes and eight white men.

Q. Altogether?

A. Yes, sir.

Q. State whether or not they were continually passing around near to this kettle and these cooling tanks, Doctor.

A. Those on the first floor were, yes.

Q. And how about the basement floor where the cooling tanks were?

A. Well, of course they filled the barrels down there with Coca-Cola syrup, the same individuals — and others — I might say that the basement was kept in a moist condition and the situation down there, I think, was very much better than it was on the first floor.

Q. Now, in the preparation of these barrels, state whether or not in your opinion they were properly sterilized, and if not, state why.

Mr. Sizer: I object to that, your Honor, he has not qualified as a bacteriologist.

The Court: The objection is sustained.

BY MR. MILLER:

Q. Are you prepared to express an opinion upon that subject, and if so, give us your qualifications in that behalf, Doctor?

A. The general conditions in which ——

Q. (Interrupting) I first asked you to state whether or not you are prepared to express an opinion as to whether or not the barrels were properly sterilized, and if you say that you are not that ends it, and if you say you are then please tell us the course of study or investigations you have

made with the view of preparing yourself to give an opinion on that point or to express an opinion as to that.

A. I would hardly consider myself a bacteriologist sufficiently — I don't believe I have made investigations far enough in that direction to warrant me in making a definite statement.

The Court: Then the objection is sustained.

BY MR. MILLER:

Q. What is the color of this Merchandise No. 5 that was used as an ingredient in making up the Coca-Cola mixture?

A. The caramel? Oh, Merchandise No. 5?

Q. Yes.

A. Mr. Candler told me ——

Mr. Sizer: I object to that.

BY MR. MILLER:

Q. Have you seen Merchandise No. 5?

A. I have.

Q. I just asked you to state what the color of Merchandise No. 5 is.

A. Oh,—it is straw or a light amber color.

Q. State whether or not the addition of the caramel to that mixture colors it in any way, and if so, in what respect.

A. Yes, it increases the color very materially, from that light amber or straw color to a dark amber.

Q. Now, assuimng that there is contained in a keg of this mixture insects or remnants of insects that were produced here by Doctor Fuller and which you say you saw, and assuming it was contained in a 10-gallon keg, I will ask you to state whether or not the presence of such insect life, whether living or dead, for that matter, would damage or render that product inferior.

Mr. Sizer: I object to that, that is not a question of scientific or expert testimony.

The Court: If this witness saw two kegs, one with and one without, he can describe the difference. If he did not see anything but merely is expressing his general opinion, the jury would be as competent to pass on that and the exception is sustained unless he shows he saw both.

Mr. Miller: That is Doctor — your Honor, I did not ask him as to caramel and the water, I was asking him whether or not the presence of the insect life in this mixture rendered it deleterious or made it inferior as an article as compared with one in which insect life did not exist; that is my question.

The Court: I did not catch your question.

Mr. Sizer: I say, your Honor, that is not a question of expert medical knowledge; it is a question of fact.

Mr. Miller: I submit that is all it can be.

The Court: I will allow the question to be asked. You may ask one witness on that question.

Mr. Sizer: We note an exception.

BY MR. MILLER:

Q. State how that is, Doctor, whether or not the presence of the insects that were exhibited here and the insect life in its original state and after it was killed as shown by that exhibit of Doctor Fuller's in the keg of this product — was, as compared with the product with that in it, inferior or damaged for the purpose of consumption.

A. I would consider it an inferior product, unwholesome, containing foreign and decomposed animal matter.

Q. State whether or not the addition of caramel to this product would conceal or prevent detection by the sense of sight of persons of the insect or animal life that would exist in the kegs, the animal life — bees or flies or whatever they were that were in the mixture.

Mr. Sizer: Now, I object to that.

The Court: Unless the witness saw the Coca-Cola syrup and then saw some of the caramel and he saw the difference, he could not state.

The Witness: Yes, I saw the syrup before the caramel was added into it afterwards, and I saw the syrup after the caramel was added.

The Court: You may state what its effect would be.

The Witness: By careful observation it might be possible to detect the bug or fly or whatever it was in a mixture of that character, but the other ingredients it would be simply impossible for any one to observe, hardly.

BY MR. MILLER:

Q. What is the effect of adding a caramel mixture to the mixture before it is added, as to color?

A. It makes the transmission of light more difficult, it makes it more difficult for any one to see through it, the syrup is perfectly clear and transparent, whereas when the caramel is added, it colors the product gradually darker and makes it impossible to observe these materials in this mixture after they were broken up into the small particles as they were shown here by Doctor Fuller.

Q. State whether or not that matter of observation would become more difficult as they would decompose and break up.

A. It would become more difficult.

Q. Have you ever taken any Coca-Cola yourself?

A. Yes, sir.

Q. What is the effect of caffeine on the human system when taken into the system, Doctor?

A. Well, it has a diuretic effect on the kidneys, increases the heart action, but the chief action is upon the brain, causing wakefulness, increasing activity, etc.

Q. Have you ever used or consumed any Coca-Cola yourself?

A. Yes, sir.

Q. What is the effect of the Coca-Cola preparation as taken by you?

A. Well, if I would take it in the evening or late afternoon it keeps me awake. It prevents sleep.

Q. How do you account for that?

A. By the action of the caffeine.

Q. I say, how do you account for that? What is the casual property?

A. The caffeine stimulates the activity of the brain and makes it impossible for any one to go to sleep until that stimulation is worn off entirely by the body.

Q. I will get you to state, first, whether at the time you were in Atlanta and just prior to this seizure and about that time, through this section of country that you have stated you visited, you observed Coca-Cola was sold at times during the day at fountains and dispensed there.

A. It was sold at all times.

Q. Was it or not sold in the evening and after supper the same as during the forenoon?

A. It was sold all day, and in some places all night.

Q. State whether or not you observed any users of Coca-Cola that were frequent or apparently addicted to the use of it, particularly in the city of Atlanta? Have you had anything of that kind come under your observation; has it impressed itself on you in that respect?

Mr. Sizer: I object to that question, "apparently addicted to the use of it," and submit it is not a proper question as to what he observed as to the effect of the use of it.

Mr. Miller: He has given the effect and I am now asking as to the apparent addiction and what evidences, if any, there were.

The Court: The exception is sustained as long as it calls for the mere appearance and asking if he knows of any cases ——

BY MR. MILLER:

Q. Did you observe any instances where a party or par-

ties were addicted to the use of it, or frequent consumers of it?

A. I have watched soda fountains for hours at a time, and I have seen some pale faces appear repeatedly during that time. I say repeatedly, but a number of times during that time, and I have also seen some of them drinking two and sometimes three glasses of Coca-Cola at one sitting of five or ten minutes.

Q. These persons that would come in, state what they called for when they came in to be served.

A. Well, they called for a product under different names.

Mr. Sizer: I object to that. He is asking him as to what some people call for that went up to a soda fountain. The question is incompetent.

Mr. Miller: I am speaking of consumers of Coca-Cola, that is what I am speaking about.

BY MR. MILLER:

Q. Now, I am speaking of consumers of Coca-Cola and I will ask you whether or not these people that you have observed as they came there called for Coca-Cola by the popular name under which it is sold.

Mr. Sizer: I object to that. The question is now as to whether or not it was sold under a peculiar name and the fact that this witness might go to soda fountains with which the company is not connected and buy it under some sort of a slang name or a different name I submit is entirely immaterial and irrelevant in this case.

The Court: It might throw some light on it.

Mr. Sizer: We reserve an exception.

The Witness: Some consumers would ask for Coca-Cola, and others for "coke," and some called for the article under the name of "dope."

BY MR. MILLER:

Q. That is not what I was trying to get at. I was trying to ascertain whether or not these people you saw drinking there took this same product Coca-Cola ——

Mr. Sizer: I want to object to the answer of the witness made to the last question on the ground that the fact that people may have called for Coca-Cola at stands or fountains which this company had no connection with whatever, called for Coca-Cola under the name of "coke" or "dope" is entirely irrelevant and immaterial in this cause.

The Court: I understood the exception and overruled it.

Mr. Sizer: I desire to note an exception.

BY MR. MILLER:

Q. These people that appeared periodically as you say and called for the drink under whatever name, state whether or not they received a drink of this same coloring as Coca-Cola.

A. They did.

Q. I will get you to state what the relative quality or dose of the syrup that was ——

Mr. Sizer: (Interrupting) I object to that last question and the answer; the question was whether or not they received a substance of the same coloring as Coca-Cola There may be a thousand things that have the same coloring.

The Court: That may be a circumstance showing it was the same.

Mr. Sizer: I submit if one man goes in and calls for Coca-Cola and he gets a glass of a substance and another man calls for it and he gets something of the same color, that is not competent evidence that they are the same.

The Court: I think it is a circumstance.

Mr. Sizer: We desire to note an exception.

The Court: I believe I will change my ruling on that. That may be prejudicial unless this witness is qualified — to show that it is the same color is carrying us into it very far. I exclude the answer, that when these people call for these other substances they get an article of the same color.

BY MR. MILLER:

Q. I will get you to state under what name this product Coca-Cola is popularly and generally known and sold in the city of Atlanta where it is manufactured, and throughout these cities that you say you visited from time to time, and dispensed.

A. I think the general name is Coca-Cola.

Q. That is the general name?

A. Yes, sir.

Q. Now, I ask you under what name or whether or not it is a fact that it is frequently and popularly called for under another name.

Mr. Sizer: I object to that.

The Witness: Oh, yes, sir.

BY MR. MILLER:

Q. Is it or not?

Mr. Sizer: (Interrupting) Wait a minute — he stated it was generally known by the name of Coca-Cola.

Mr. Miller: I have not asked him for the other names as yet, Mr. Sizer:

Mr. Sizer: This is his own witness.

The Court: While not generally known under another name, whether it is frequently known under another name; you can ask him that.

BY MR. MILLER:

Q. I ask you whether or not it is frequently and indiscriminately called for and dispensed under any other name in the city of Atlanta and elsewhere?

Mr. Sizer: We object to that. We object to the form of the question.

The Court: The question is leading and is objectionable.

BY MR. MILLER:

Q. State whether or not this drink is sold and dispensed indiscriminately under any other name than that of Coca-Cola.

Mr. Sizer: I object to that.

The Court: Mr. Miller, ask him if it is sold and dispensed under any other name, and if so, to what extent.

Mr. Miller: I thank your Honor for the suggestion.

BY MR. MILLER:

Q. Is this drink sold or dispensed and was it at the time of this seizure, in the city of Atlanta, Georgia, and elsewhere under any other name than that of Coca-Cola, and if so, to what extent?

Mr. Sizer: We want to reserve our objection to that question and to the answer unless they show it was sold by the Coca-Cola Company under some other name.

The Court: The exception is overruled and the witness may answer the question.

The Witness: It is sold and called for under the name of "dope" and "coke." I have heard these names applied in Atlanta, Chattanooga, Birmingham, New Orleans, Montgomery, Philadelphia, Washington, D. C., Chicago, St. Louis, and other places.

BY MR. MILLER:

Q. Now, coming back to the users of this again. I will get you to state whether or not there was any marked case of habituation that came to your attention in the city of Atlanta and while you were stopping at the Piedmont Hotel, and if so, what you observed there.

A. Well, I observed one of the telephone operators there ——

Q. A lady or a gentleman?

A. A lady

Q. Well, go ahead.

A. And I was attracted to her having brought in a Coca-Cola in the morning, before noon, at noon, after noon and evening for several days.

Q. State what was the apparent quantity of this mixture that was served to customers and whether or not there was in the city of Atlanta at and prior to this seizure any method of measuring exactly the quantity that was served, as it was generally and popularly dispensed.

Mr. Sizer: I object to the use of the word "apparent" in that question.

The Court: I suppose he used that in the sense of "visible."

Mr. Miller: Yes. I am speaking only of what was apparent, what you saw. Tell what you observed.

The Witness: You mean the syrup?

Mr. Miller: Yes, the Coca-Cola syrup.

The Witness: Well, it would vary. The glasses used were different, different in size at different places, but by observing the same sized glass used for different customers it was observed that varying quantities of this syrup were used.

BY MR. MILLER:

Q. You say that varying quantities were used?

A. Yes, sir; in some cases a smaller and in other cases a larger. There were at some,—in one or two places I saw a glass used marked by the Coca-Cola Company which had on it — that mark was usually little observed. The syrup usually employed was much more than that, some twice the volume indicated by that mark and probably in some cases — and the amount varied from one to two, and I have actually seen measured two and one-half ounces.

Q. Where a customer merely called for a glass of Coca-Cola?

A. I don't know whether it would be just merely Coca-Cola,—he would call for.

Q. Well ——

Mr. Sizer: Just let him answer that question.

A. (Continuing) They would probably ask for "coke strong," or "dope."

Q. That is just what I didn't want to get into.

A. And Coca-Cola — an individual who was known to the dealer, and he would give him a larger quantity from his knowledge of his demand.

The Court: What would you say from your observation would be the average amount served in a glass to a transient consumer?

The Witness: An ounce and a half.

BY THE COURT:

Q. In how much other fluid would that be contained?

A. About, all told, between seven and eight ounces.

Q. You say an average glass at the soda fountain contains seven to eight ounces and an ounce and a half of Coca-Cola syrup?

A. Yes, sir; the remaining part is carbonated water.

Q. And this carbonated water was usually served cold or warm, tepid or what?

A. It is usually served cold, but it is also now served hot. I have purchased it hot.

Q. Doctor, when "Coca-Cola" or "coke" or "dope" — as the case may be, was called for, state whether or not the syrup that was emitted into the glass was taken from the same pump, or emitted therefrom.

A. Yes, the same material was served when the three different names were called for; that is, out of the same faucet or pump.

Q. How does the dispenser emit that into the glass customarily?

A. Either by pressure or by a lever pulling it out; there are several ways of doing it.

Q. Well, tell us whether or not there is one automatic — I mean, one push at this automatic contrivance or one pump stroke or how is that?

A. In some cases there is one stroke and in other cases two and three, depending sometimes on the working of the pump, or the man or the liquid desired.

Q. Now, Dr. Kebler, I will get you to state whether or not you are qualified to speak as to whether caffeine is a poison and if you have made any studies in that respect.

A. I have made some study in that respect.

Q. Is it or not a drug?

A. I consider it a drug.

Mr. Sizer: I do not think the witness has qualified yet as an expert on toxicology and I object to that.

BY MR. MILLER:

Q. I will ask you if you are a toxicologist or if you have studied toxicology, and to what extent.

A. I have studied toxicology for the last twenty years. I have handled toxins and tested for same, identified same, and have read the vast majority of books in English on toxicology and some foreign toxicologies, German and French. That is constantly my business to identify these

things and particularly in dispensary remedies and medicinal agents.

Q. State whether or not you are in your opinion qualified to speak as a proper toxicologist with respect to caffeine.

A. I consider myself qualified.

Mr. Miller: I submit the witness is competent.

The Court: Proceed.

BY MR. MILLER:

Q. State whether or not caffeine is a drug.

A. Yes, I consider it a drug.

Q. Is it or not a poisonous drug, or has it a poisonous tendency?

A. I consider it a poisonous drug.

Mr. Sizer: I object to that form of the question — is it a poison or has it a poisonous tendency — you ought to ask him one or the other and not in the alternative.

The Court: Yes.

BY MR. MILLER:

Q. I will ask you in conformity to counsel's suggestion, whether caffeine is a poison.

A. Yes, I consider it has a poisonous tendency.

Q. Has it a poisonous tendency or not?

A. It has.

Mr. Miller: Take the witness.

CROSS-EXAMINATION,

BY MR. SIZER:

Q. I will ask you to kindly state again the dates of the visits you say you made to the factory of the Coca-Cola Company at Atlanta, Georgia.

A. August, 1907; September, 1908, and October, 1909.

Q. And, the first visit was the one in which you made a thorough inspection, as you have testified to.

A. Fairly thorough.

Q. On that visit Mr. Howard Candler went through the factory with you?

A. Yes, he did.

Q. Did he also go with you on each of the subsequent visits?

A. He did the second one, and the third one in part.

Q. On the first visit you had ascertained all these facts that you have testified about — that is, the conditions under which the Coca-Cola was made and the syrup and everything of that sort?

A. Yes, sir.

Q. And on the second visit you went down there you took your wife and took her to the factory?

A. Yes, sir, I did.

Q. You just took her down there to give her a little pleasant recreation?

Mr. Miller: Now, I object to that.

The Court: The exception is overruled.

BY MR. SIZER:

Q. That is a fact, is it?

A. Well, she is as much interested in this work as I am and I wanted her to see the conditions in that factory.

Q. On the third visit also Mr. Candler went through the factory with you?

A. In part.

Q. Which part of the inspection did Mr. Candler accompany you in?

A. The latter part.

Q. The latter part?

A. Yes, sir.

Q. Who was it in the first part?

A. You mean during that visit?

Q. Yes.

A. Why, Mr. Lynch.

Q. That is the visit on which you and Mr. Lynch went down there together?

A. Yes, sir.

Q. And when you went down on that occasion you didn't follow the custom that you had followed on previous occasions of first calling on the manager and going through the factory with him?

A. Yes, sir, I followed the same custom.

Q. Is it a fact, Doctor, that you did not call on Mr. Candler at all when you first went there?

A. I didn't the first time.

Q. You didn't the first time?

A. No, sir.

Q. I thought you said you went and saw Mr. Candler and told him your business before you went through the factory.

A. I found where the product was made and I went to a door and went in, went inside and met Mr. Candler.

Q. I am talking about the first visit.

A. Yes, sir.

Q. Is it a fact that when you went there the first time you called for the manager and told him your business and he went through with you?

A. It might have been, I don't remember the details.

Q. Do you remember Mr. Candler being with you on that entire visit the first time?

A. Yes, sir.

Q. And on the second visit you also informed Mr. Candler of the purpose of your visit and he went through the factory with you and your wife?

A. Pursued the same way I did the first time.

Q. And the third time you and Mr. Lynch went there and without saying anything to Mr. Candler, undertook to make an inspection of that plant?

A. We proceeded as we did formerly.

Q. Is it a fact, Doctor Kebler, and have you not so stated that you did not notify Mr. Candler the third time and he did not go with him?

A. We did not notify him on the second visit.

Q. On the second visit he came and went through the factory with you?

A. Yes, sir.

Q. He came and went through the factory with you?

A. Yes, sir.

Q. He went through the factory with you?

A. Yes, sir.

Q. Where did he meet you the second time?

A. He met us somewhere — I don't know just where, I could not answer just where, but he met us.

Q. And before you made an inspection, didn't he, or any part of the inspection on the second trip?

A. Yes, sir, I think he was with us during the entire trip.

Q. How much of the inspection had you and Mr. Lynch completed on the third trip before you saw Mr. Candler?

A. I would not be able to answer that definitely. We were in there a little while and Mr. Candler came. It was early in the morning and we went down there rather early because we were there in court and when we arrived at the place the door was open and we walked in as was our custom, and some of the employes were there and they knew us from former visits, and we proceeded the same as we had been doing on former occasions.

Q. Did you go in the same way on the third visit?

A. Yes, sir.

Q. In through the same door?

A. Yes, sir; as far as I know it was the same door that was there.

Q. Did you go into that main entrance door leading to the first floor on all three of these visits?

A. Yes, sir.

Q. You went through that?
A. Yes, sir.
Q. And who was it that met you on the occasion of your first visit when you went in?
A. Mr. Howard Candler.
Q. Who met you on the second visit when you first went in?
A. Mr. Howard Candler.
Q. Who met you on the third visit when you first went in?
A. Why, I don't know who it was; some workman there.
Q. The fact is you didn't tell your business to any one on that third visit?
A. I didn't tell my business at any time excepting at the first.
Q. Well, you told Mr. Candler when he met you on the second visit.
A. Well, I don't know that I did.
Q. On your third visit you didn't tell any one what you came there for?
A. Tell any one?
Q. Yes, did you tell any one?
A. No, sir, not particularly.
Q. Did you ask that employe to tell Mr. Candler you had come down to make another inspection of the factory?
A. I don't think we did.
Q. Now, the fact is that you had gone nearly through this entire factory on that third visit before Mr. Candler came along at all?
A. It may be possible; I don't remember that point.
Q. You don't remember how much of the visit you had completed before he came?
A. No, sir.
Q. Where were you when you first saw Mr. Candler?
A. I could not say definitely.
Q. Were you up on the stringers next to the ceiling of the basement looking into the tanks?
A. I never was on any stringers.
Q. You were on that beam that supports the tanks up next to the ceiling?
A. I never was on one of those stringers or beams.
Q. Where were you then?
A. I think we were propably on the stairway looking, or looking into the tanks in which the Coca-Cola syrup was being cooled.
Q. That is the tank down in the basement?
A. No, the two tanks—well, the tanks in the basement

suspended from the floor.

Q. They are suspended from stringers or beams that run across under the floor; is that it?

A. Yes, sir.

Q. And these tanks are how close to the ceiling?

A. Well, from six inches to a foot; I am not positive about that.

Q. You mean from the ceiling or from the stringers from which they were suspended?

A. Yes, sir; what we call the joists.

Q. How far was that joist from the ceiling?

A. Well, if I remember correctly, the joists there were probably ten inches—maybe they were a foot; I don't know, I didn't measure these joists.

Q. How far is that staircase from the tank that you were trying to see into?

A. I could not say definitely, but not very far away; we could see into a number of them from where that stair was.

Q. You could not see in all of them from the stairway?

A. No, sir.

Q. And how did you see into the others?

A. We didn't see into all of them.

Q. Didn't you get up on the stringers that go across and look into the others?

A. No, sir.

Q. Did Mr. Lynch do that?

A. I didn't see him.

Q. Well, you were with him all the time you were making that inspection?

A. Yes, sir.

Q. So it is you are not able to say now whether you saw into only two of these tanks?

A. I saw into three or four or five.

Q. How many were there altogether?

A. I didn't count them.

Q. Well, give us your best idea as to how many of those Coca-Cola tanks there were.

A. It would be simply guessing; I might see a thousand.

Q. Well, do you think a thousand?

A. No, sir; I say I would be just guessing.

Q. That is as near as you could guess at it?

A. I said it would be just a guess.

Q. Well, could you not, having been there on three separate visits and inspected that factory, possibly give us some approximate idea?

A. Probably ten or twelve.

Q. Doctor Kebler, the original information in this case

was prepared and sued out on the information given to the district attorney by you and Mr. Lynch, was it not?

A. Not by me.

Q. Well, the course pursued was this: that you gave the information to the secretary and then the secretary communicated it to the Department; is that correct?

Mr. Miller: I object to that; that is immaterial. I can conceive of no reason how that would become competent.

Mr. Sizer: I think I will show your Honor—the reason is this—I want to ask him if he is the man on whose information the allegations in the libel were based.

The Court: You can show who he gave his information to, but he would not know further than that, except from hearsay.

BY MR. SIZER.

Q. To whom did you communicate the facts that you discovered on the three inspections of the plant?

A. To Dr. Wiley, the chief of the Bureau of Chemistry.

Q. And you know that following that, the original libel was filed in this case?

A. No, it was not filed following that; I made a report of conditions in 1907 and 1909, and at a number of times but the exact date or time that Doctor Wiley communicated this information to other parties I do not know.

Q. Well, you communicated to the proper official all the information you had gained on these three tours, didn't you?

A. All that I considered material; yes, sir.

Q. You saw the original libel before it was filed?

A. No, sir; not to my knowledge.

Mr. Miller: You say it was communicated, Doctor Kebler. I want to ask whether or not that communication was in writing?

The Witness: I do not think so; we talked the matter over. It is not in writing.

BY MR. SIZER.

Q. You knew the contents of the original libel, didn't you?

A. I did not.

Q. You never saw a copy of it at any time?

A. Not previous to the seizure; no, sir.

Q. How soon after the seizure did you see a copy of it?

A. Maybe a month or two.

Q. Well, you were aware of the fact that the original libel was amended on several occasions?

A. Well, simply from hearsay.

Q. You heard it?

A. Yes, sir.

Q. And you saw the amendments to the libel, didn't you?

A. Well, I probably did.

Q. And you knew the fact, Doctor Kebler, that it was not until a month or two ago after that original libel had been amended on three or four different occasions that any allegation was made by the Government in respect to the condition of the manufacture of this product?

A. I don't know anything about it.

Q. You saw the last amendment, didn't you?

A. I saw it when I read it here, yes, sir.

Q. You know that was filed but a month ago, don't you?

A. I don't know.

Mr. Miller: That is a matter of record here, and what this witness may know or not on this point is immaterial.

Mr. Sizer: I want to show he knew the allegation of the original libel and the different amendments and I want to show he knew the facts that the amendments were recently made on, and that they were not put in until about a month ago.

Mr. Miller: That is immaterial. He is not charged with enforcing the law. He can't enforce a law, he is only an employe of the Government. I submit, your Honor, that it is incompetent and irrelevant for any purpose.

Mr. Sizer: We think we have the right to ask him, to show on whose information the libel was predicated, and the amendments also.

The Court: If he had signed the libel or verified it, I think the question would be competent, but as he did not I do not think it is competent and I will sustain the exception.

BY MR. SIZER.

Q. Now, Doctor Kebler, what experience have you had as a practicing physician—any?

A. No, sir, except what we get ordinarily—I have been in this business for a goodly number of years, studying medicines off and on as my time would permit, and my funds would avail, and I have watched these things for many years; I have had considerable practice and been thrown in contact with the effects of medicines. I have taken a medical course and am a registered practitioner, but do not practice medicine for a living, but I do prescribe occasionally for individuals gratis.

Q. You have never been a medical practitioner?

A. No, not in the generally accepted meaning of the term, no.

Q. As a chemist, what practical experience have you had?

A. I have analyzed a goodly number of medicinal products; while I was connected with the firm I referred to in Philadelphia I had charge of the analyses of medicines purchased and delivered to the laboratory for examination. At that time we examined, the first year, I would say not less than 1,000 different samples, the second year probably 1,500, and we increased the last year; I think we examined in the neighborhood of 1,200 different samples, and since then I have examined probably as many samples or had them examined under my supervision.

The first year I was with the Bureau of Chemistry I did all the work myself and made all the examinations and made the examinations of all the chemical re-agents that were supplied to the Bureau of Chemistry, and I have examined hundreds of proprietary shipments.

Q. How long were you connected with that Philadelphia house that you referred to?

A. I stated about ten years.

Q. You commenced in 1893, then?

A. I think I began in June or July of 1892.

Q. Of 1892?

A. Yes, sir.

Q. And in 1903 you went with the Government?

A. Yes, sir; in March of 1903.

Q. And you have been since and are now in the service of the Government?

A. I am.

Q. What do you say now your duties were in connection with that Philadelphia house—you say among other things that you analyzed drugs that came in there?

A. Yes, sir.

Q. What other duties?

A. I had general supervision of the analytical work, the manufacturing and experimental operations carried on there.

Q. Is that all now?

A. Well, that covers a great deal.

Q. Now, I didn't ask you whether that covered a great deal or not, but I asked you as to whether or not that was all.

A. I can give it in detail.

Q. Well, I do not want the details; just answer the question. I do not want it in detail, but I want to know if that covers it all.

A. I said that I could give it in detail.

The Court: Just answer the question.

BY MR. SIZER.

Q. That was all, was it?

A. Yes, sir.

Q. How long did you say you were in the hospital work, Doctor?

A. I had no definite time which I served in the hospital, but during the last two years of my medical work, we were in the hospital a good deal.

Q. That was while you were attending medical lectures?

A. Yes, sir.

Q. While you were a medical student?

A. Yes, sir.

Q. During what period of time did you say, what years?

A. The year of 1894, the year of 1896, and I have been in hospitals off and on to a certain extent, since that time, tubercular hospitals, not as an interne, but simply as an observer of conditions.

Q. Now I want to ask you, Doctor, when it was that you first made the acquaintance of the substance that you speak of as cola, namely, the kernels of the nuts that came out of the cola tree?

A. I could not give the exact date; probably 1894.

Q. While you were in the employ of this Philadelphia concern?

A. Yes, sir.

Q. That name is very frequently spelled "k-o-l-a"?

A. It is.

Q. And it is recognized as the fruit of a tree that grows in Africa called the kola tree, is it not?

A. I don't know what it is called in Africa.

Q. Isn't the word "kola" defined in the English dictionaries and encyclopedias as a tree that grows in South Africa?

A. It may be, I have not looked those things up.

Q. You know that name does indicate a tree particularly, do you not?

A. No, I don't know it.

Q. You don't know whether it does or not?

A. No, sir, I have never seen it.

Q. The name is spelled "Kola" and frequently "Cola"?

A. Possibly.

Q. Now, when did you make the acquaintance of "Coca," about the same time?

A. Yes sir.

Q. The word "Coca" was applied primarily to a South

American shrub, was it?

A. That I do not know.

Q. Don't the directionaries define the word "Coca" as a South American shrub, the scientific name of which is Arythroxylon Coca?

A. I must say I never looked up those definitions.

Q. Neither did you look them up in the encyclopedias?

A. No, sir.

Q. And you are not prepared to say whether the name "Coca" is the particular name of a shrub or not?

A. No, sir.

Q. Do you claim to be an expert pharmacist, Doctor?

A. I think I have a fairly good knowledge of pharmacy.

Q. You acquired that knowledge during this experience that you had with this Philadelphia firm?

A. Yes, sir.

Q. Now, when did you first make the acquaintance of Coca-Cola?

A. Well, I would not be able to answer that definitely except in a general way; it was during my connection with that firm.

Q. Known and sold for a number of years, has it not?

A. Yes, sir.

Q. This particular product made by this particular firm?

A. I don't know what particular firm made it, but I knew it under that name for a number of years.

Q. The name of it has been trade-marked, or do you know how that fact is?

A. Well, there is a trade-mark in the Patent Office at Washington.

Q. Well, there are two trade-marks there, are there not?

Mr. Miller: I submit if there are trade-marks there, the record is the best evidence, your Honor.

The Court: The exception is sustained.

Mr. Sizer: I am asking the witness as to his knowledge of the name and the extent to which it is used and the manner, and he referred to, on original examination, the trade-mark, and I didn't object, and I want to bring out the fact that he knows it was trade-marked, had a trade-mark name, that the name was trade-marked.

Mr. Miller: You asked him if there were not two on file in Washington, and I say the record is the best evidence.

The Court: The exception is sustained. He can testify to the fact, if he knows it, that there is a trade-mark, but he cannot testify whether there is a trade-mark actually in

Washington or not, as the trade-mark would be the best evidence.

Mr. Sizer: It would be true if it were not for the fact that Mr. Miller himself asked him about that trade-mark name.

The Court: I didn't catch that, the witness may have said something about that.

Mr. Miller: This paper, it purports to be a trade-mark, I mean this pictorial design, and I asked him if that was the character they put out as a trade-mark, the character of a design, and I think my recollection is that I did not ask him whether in fact it was trade-marked.

The Court: I didn't understand him that way.

Mr. Sizer: My recollection is quite distinct that he did ask him, but I will pass from that matter.

The Court: If the witness has stated that, there would be no harm done ——

BY MR. SIZER:

Q. (Interrupting.) You say you have known this product under this name from the time you were connected with this Philadelphia drug house?

A. I have known it probably ten or twelve years.

Q. You say that you have known it probably ten or twelve years?

A. Yes, sir.

Q. Well, have you known it since about 1888 or 1889?

A. No, I didn't know it then.

Q. Ever since you have known it, it has been sold under that same name, hasn't it?

A. I have seen that name, but I don't know what it has been sold under.

Q. You saw that name on the packages and advertisements of the product, did you not?

A. I have seen the advertisement, but I have not seen the barrels or containers until within the last five or six years, probably.

Q. All the advertisements that now appear are written this same way?

A. I would not want to say that, for I do not know.

Q. Did you ever see it on any advertisement written in any different way so far as you recall?

A. I would not say that I have.

Q. Isn't it a fact it always appeared with a hyphen between the two names "Coca" and "Cola"?

A. I have never been impressed with that. I have seen the hyphen there, but I have never had it brought to my attention until it was called to my attention ——

Q. (Interrupting.) Have you ever during these years seen any other substance advertised under that particular name?

A. I have seen a great many substances advertised, but whether any other substance was advertised under that name I don't know.

Q. You don't know of any other substance being sold or made or advertised by that name?

A. No, sir, not personally, I know of another product that has been on the market under that name?

Q. Well, you know also, and have you got a record to that effect that where other products have been attempted to be put on the market by that name, they were enjoined by the Coca-Cola Company?

A. No, sir.

Q. You do know that suits of that kind have been brought and prosecuted?

Mr. Miller: I object to that, that is a matter of record.

The Court: Well, that is a collateral matter — I don't think you can introduce secondary evidence about that.

BY MR. SIZER:

Q. The coca leaves are advertised and sold in this country, and put on the price lists and called for under the name of coca leaves?

A. I have seen that.

Q. And the cola nuts, the nuts of the cola tree, Cola Acuminta, are likewise advertised and put on the price lists and sold as cola nuts?

A. I have seen that statement in the price lists.

Q. Have you not made any investigation to ascertain if this product, Coca-Cola, contains extract from the coca leaf?

A. No, I have not gone into details in that matter.

Q. Have you ever made a statement that it did?

A. I have examined Merchandise No. 5, with a view of finding how much plant extractive was there, but further than that I have not gone.

Q. You did go far enough to ascertain there were certain substances from the coca leaf in Merchandise No. 5?

A. No, sir, I could not find any evidence of that because I didn't go into it far enough.

Q. Did you make a statement in a report to the Government a number of years ago to the effect that the coca-cola made by the Coca-Cola Company, of Atlanta, Georgia, did contain the extracts of the coca leaf?

A. I don't remember any such report.

Q. If you made that statement then you did not know

as a matter of fact whether it did contain extract of coca leaf or not?

A. I had probably stated in the manufacture of Coca-Cola there was used a waste product obtained in the manufacture of cocaine by a factory in Maywood, New Jersey.

Mr. Miller: I move to exclude that answer, because I submit that is not competent.

Mr. Sizer: I move to strike that answer and exclude it from the jury because it is wholly irresponsive to the question.

Mr. Miller: Well, I also move to do it so there will be no disagreement about it.

The Court: The answer is excluded.

BY MR. SIZER:

Q. Mr. Hacker, please read the witness the question, and, Doctor, I will ask you to answer the question.

(Q. "If you made that statement then, you did not know as a matter of fact whether it did contain extract of coca leaf or not"?)

A. From my personal knowledge, no, from my personal investigation, no.

Q. Referring again to the trademark, in this trade name I hand you two papers purporting to be certified copies of the registered trade-mark, and ask you to look at the trade-mark as it appears on these certified copies and state if in each case these are the names under which this product has been advertised and sold.

The Court: Doctor, he has asked you the simple question whether those names that appear there, are the names under which Coca-Cola products have been sold.

The Witness: Well, there are two names here, one is written in one way and the other in a similar way, and one contains trade-mark the word "Trade-mark" in the flourish at the bottom and in the other case it does not. That is the only difference in the two trade-marks that I see at the present. That is all I see at present. I have not examined it minutely.

Q. Well, just compare it minutely and see if you can see any other difference.

Mr. Miller: Well, that will require some time, and if they will let us inspect it when the witness has finished, we will ascertain if there is any difference.

The Witness: That is the only marked change or difference that I see.

The Court: I don't think it will require much time to say whether these two are the same.

Mr. Sizer: It struck me that way, but I offer them in

evidence and pass them to counsel.

The Court: They can be identified as numbers two and three to the testimony of this witness.

BY MR. SIZER:

Q. When was it you say you made these visits to these various cities throughout the South in order to investigate the extent of the use of Coca-Cola?

A. I made a special trip in 1907, and since then I have made various inspections of number of places that I have visited, whenever I am out on business, I always looked into various questions that come up, and in so doing, I looked into Coca-Cola in Dallas, Texas; Chicago, and other places.

Q. Now, you made these investigations by going around to the soda fountains and staying there for an hour or two at a time watching people who came in to buy Coca-Cola?

A. I have done that, and gone to the factories also.

Q. You say they had the substance on sale at all times in Atlanta, indiscriminately to anybody that wanted to come for it?

A. Yes, they had that product on sale there.

Q. Well, they also had chocolate soda water, didn't they?

A. I suppose so.

Mr. Miller: I object to that, that is foreign to the issue, if your Honor please.

Mr. Sizer: We propose to show that chocolate is identical in its composition, that is it has a drug practically identical with Coca-Cola syrup, and coffee and tea — we just want to show that all these substances were on sale in the same way.

Mr. Miller: I submit there are reasons — if you assume what he says, it is not competent.

The Court: I don't think we should extend the investigation to anything except caffeine.

BY MR. SIZER:

Q. Now, how about the coffee extracts; all soda fountains carry coffee extracts in carbonated water?

A. I have seen that, but have not seen it a number of times.

Q. You were not looking for coffee extract, but you were looking for Coca-Cola?

A. My chief main drinks were of that type.

Q. You did observe a number of fountains that had coffee extract for sale, served in carbonated water?

A. I don't know how they were prepared.

Q. Do you know a number of these fountains that sold coffee extract in the form of a fountain drink, or sold coffee extract and flavor from an extract flavor in a fountain drink?

A. I have seen them sold, yes, sir.

Q. You don't know how much caffeine there was in those coffee drinks?

A. No, sir, I never examined those products.

Q. You say that you heard dope very frequently called for and sold in Atlanta at fountains?

A. I have heard the name applied quite frequently.

Q. As a matter of fact, is there a drink made and sold in Atlanta under the name of "Dope"?

A. There was such a drink on the market; I found that at the same time I made the investigation in connection with Coca-Cola.

Q. If the man called for dope, how would the soda dispenser know whether he wanted the real dope or the Coca-Cola under the name of dope.

A. Well, there is no doubt about what they want.

Q. How do you know?

A. From experience.

Q. When a man goes in and calls for dope, then although they have dope for sale, they would not give him what he called for, but would give him Coca-Cola, is that your testimony?

A. That is the usual custom.

Q. How did you know when a man came in and called for dope and they poured some syrup in a glass and filled it up with carbonated water, whether it would be Coca-Cola or dope.

A. Generally circumstantial evidence.

Q. How would you know in any particular case?

A. I will tell you. In my travels on the train and in every place where the carbonated product is sold, where dope is called for, Coca-Cola is usually handed out. I have seen it in bottles many times.

Q. I am not asking you about when it is sold on the train; I was confining my question to the sale of Coca-Cola at the soda fountains. Now, I ask you again if a man goes into a soda fountain and calls for dope and the dispenser pours some syrup into a glass and fills it with carbonated water, how do you know that man is not getting something else than Coca-Cola?

A. I have stated fully that I knew it by circumstantial evidence. I can give my circumstantial evidence.

Q. I want the circumstantial evidence, and I am speaking with reference to soda fountains now.

A. I have not that same circumstantial evidence in conjunction with soda fountains as I have in conjunction with bottled goods. I could not identify the product in that way.

Q. In that case you would not know whether a man was getting dope or was getting Coca-Cola or getting something else, or getting something that he did not call for.

A. Not absolutely except in a section of country where it was not sold.

Q. What particular sections of country were there at the time you made this inspection in which Coca-Cola was sold and dope was not?

A. It has not been sold to my knowledge, in Washington; I have not found it in Philadelphia or St. Louis.

Q. You never found which?

A. The article sold under the name of "Dope."

Q. How do you know they didn't have dope there?

A. Because we made an investigation to find out whether this commodity had ever been sent there.

(Thereupon at twelve o'clock noon a recess was taken until twelve-twenty o'clock the same day.)

AFTER RECESS.

At twelve-twenty o'clock P. M., the Court met, pursuant to the taking of recess.

Thereupon,

DOCTOR L. F. KEBLER

resumed the stand for further

CROSS EXAMINATION,

BY MR. SIZER:

Q. Doctor, this dope, that is the article that is made and sold as dope, served as a fountain beverage at soda fountains, that is about the same color as Coca-Cola syrup, is it not?

A. I should judge so.

Q. There is also another article sold here in this part of the country and known as Cherry Dope, is there not?

A. I have not seen that one.

Q. How is that?

A. I have not seen that one.

Q. You have seen that one yet?

A. No; I have not seen that one.

Q. Is there a soda fountain drink known as Cherry Cola, that is sold on the market?

A. I don't know that one. I know of one "Cherryola."

Q. The name or the word "dope" when a man goes into a soda fountain and calls for a dope, you understand that is just an abbreviation of the term Coca-Cola, is it not?

A. I don't know what it is an abbreviation of.

Q. Just used in a slang sort of way?

A. I don't know whether it is slang or not. It has come to have a definite meaning.

Q. You never heard of the Coca-Cola Company, of Atlanta, advertising their product as "Coke" or "Dope" did you?

A. No.

Q. You never knew of the Coca-Cola Company selling their product as "Coke" or "Dope", did you?

A. No.

Q. You say that on one occasion you saw a man go in and take two or three glasses of Coca-Cola in succession?

A. That happens frequently.

Q. Where did you ever see a man do that?

A. In Atlanta, Washington and Knoxville.

Q. And anywhere else?

A. No, sir, I don't recollect any other place.

Q. Do you recollect any particular place where you saw in Atlanta this same man drink three glasses in succession, we will say of Coca-Cola?

A. Yes; at Jacob's Pharmacy, and another there at Mr. Elkin's place, Elkins-Watkins.

Q. You say there are eight ounces of water in that drink served at the soda fountain?

A. No. I do not know as I said that or made that statement. I stated that certain of syrup was put in there or an uncertain quantity of syrup was put in there, and then the glass was filled up with water, whatever that might be.

Q. Did you not state on your examination in chief that there were about eight ounces in the drink, as ordinarily taken?

A. Seven or eight ounces, yes.

Q. Did you not say about eight ounces?

A. Well, put it eight ounces if you want.

Q. I want you to put it. Did you not say about eight ounces.

A. It is seven or eight ounces to the glass.

Q. And if a man would sit down and drink three glasses at one sitting, he would get about twenty-four ounces of carbonic acid gas, and Coca-Cola syrup in his stomach at one time?

A. He would get twenty-four ounces of the Coca-Cola beverage as given to him at that fountain.

Q. Now, that Coca-Cola syrup is over fifty per cent. sugar, is it not?

A. Approximately fifty per cent.

Q. Is it not between fifty-two and fifty-three per cent. sugar?

A. My recollection is, it is about fifty per cent. of sugar.

Q. Are you prepared to state that it has not got between fifty-two and fifty-three per cent. sugar?

A. The analysis was here. I would not make any definite statement.

Q. Now, if a man should take more syrup in a glass or much more than the one ounce that is ordinarily served, the mixture would be so sweet as to be unpalatable, would it not?

A. No. I have seen men drink Coca-Cola straight.

Q. Where did you see that done?

A. In Washington.

Q. How much would he drink at a time?

A. Three or four ounces.

Q. Four ounces. And he would get a good deal of sugar in that, would he not.

A. Approximately two ounces.

Q. Who is the man that did that?

A. I don't know.

Q. He would just go to a soda fountain and call for straight Coca-Cola syrup?

A. Yes.

Q. How many different individuals do you recall seeing do that?

A. That is the only one I have seen.

Q. And you don't remember his name?

A. No.

Q. When was that?

A. I have seen it in Washington several times.

Q. The same man?

A. Yes.

Q. What does he do?

A. I don't know.

Q. Does he go to the same fountain all the time?

A. That, I cannot answer.

Q. Would he take that sort of a drink more than once a day?

A. I don't know about that.

Q. What particular place was it that you saw that?

A. Oh, I have seen him in the Stephan's ——

The Court: I do not think you need to show as to each individual man. Just take the general ——

BY MR. SIZER:

Q. I will ask you then about this individual lady that

you talk about down at the Piedmont Hotel, that telephone operator. What was her name?

A. I did not introduce myself to her.

Q. Did you find out her name?

A. No, sir.

Q. Is she the day operator or the night operator?

A. I made my observations during the day.

Q. She was the operator then who had charge of the local exchange in the Piedmont Hotel during the day?

A. As far as I recollect, yes.

Q. When was it you observed her habits with respect to drinking Coca-Cola?

A. I could not answer that question definitely. I have been there a number of times.

Q. And every day would you stay around there to see how many drinks she would take in the course of a day?

A. Not every day; but I observed that just a few days, a few times.

Q. You stayed there two days and hung around the hotel just to see how many drinks of Coca-Cola that lady took?

Mr. Miller: I object to the term "hung around."

Mr. Sizer: I withdraw that offensive term, and will say stand around the hotel.

The Witness: I did not have to stay around there all the time, because I could see them bring those quantities in at the time I was there. She may have had more than that.

Q. How many drinks did you see her take in the course of any one day?

A. Just the number I have given.

Q. How many was that?

A. One, two, three, four, five.

Q. Four or five, did you say?

A. Yes.

Q. Would they be distributed all along throughout the day?

A. Yes.

Q. Did you see her take four or five drinks on more than one day?

A. No, I do not think I could say that I did.

Q. You just saw the drinks brought in to her?

A. Yes.

Q. How do you know it was Coca-Cola?

A. I saw the man that had the Coca-Cola, the porter. Coca-Cola down there is served on trays, and carried around the city from certain places, and I have seen it go out of this durg store from the fountain and carried right to these places.

Q. Yes, but the dope is the same color as the Coca-Cola, is it not?

A. Yes.

Q. And Coke is about the same color as Coca-Cola?

A. I have never seen the dope carried around that way.

Q. What I want to get at is how you knew it was Coca-Cola.

A. I have seen it drawn right out of the Coca-Cola fountain.

Q. I am speaking about this young lady, where you would stand at the hotel and see the messenger boy come in and bring her a glass of some soda fountain beverage. How did you know whether that was Coca-Cola or dope?

A. Chiefly circumstantial evidence.

Q. What was that circumstantial evidence?

A. The common practice obtaining in Atlanta, Georgia, of porters carrying Coca-Cola around the city to various places, young men going out from the hotels, or others, and bringing the material into the people who called for it.

Q. And do not people call for lemonade sometimes, and send out and get it?

A. I have never seen that practice anywhere.

Q. Did you ever hear anybody calling for malted milk and sending out and getting it?

A. I have never seen anyone peddle it in the street, malted milk or lemonade, in that manner.

Q. Have not seen them send out and get a chocolate soda drink?

A. I have not seen any one peddle it around in that manner.

Q. Or a chocolate milk?

A. No.

Q. You never saw anybody send out and get a glass of a soda fountain beverage except Coca-Cola?

A. Oh, yes. I stated that I never saw it in the manner it was done at that time and is now probably done, in Atlanta.

Q. What was the difference between the manner in which this porter, or messenger, brought in this glass that the young lady took, and the manner in which other people would be served with soft drinks generally?

A. It is the regular practice. He would have half a dozen and more glasses of Coca-Cola on the tray.

Q. How do you know it was all Coca-Cola?

A. Well, of course I would not be positive.

Q. You would not know whether it was Coca-Cola,

Dope, Sarsaparilla, or some other substance the same color?

A. No, except this, that I have seen the porters coming into these drug stores and soda fountains and have their trays filled with this beverage, and I have never seen it with any other.

Q. On this occasion when you were in there watching the young lady, you did not see what the porter got at the drug store, did you?

A. No.

Q. You just saw him bring in a glass of a substance on a tray and hand it to the young lady?

A. There were a number of glasses on the tray, usually.

Q. Who were the others given to? Were they all given to her?

A. Going up and down in the hotel. Others would drink them also.

Q. Serving her and other people?

A. Yes.

Q. One may have been dope, one Coca-Cola, one sarsaparilla, and one something else, or a cherry dope?

A. I have never seen sarsaparilla put on a trap that way.

Q. A great many people prefer sarsaparilla to other drinks, do they not?

A. That is possible.

Q. And sarsaparilla is very similar in color to Coca-Cola, is it not?

A. It is colored with the same material.

Q. And a great many other fountain drinks, in fact, have the same color?

A. Not so very many.

Q. There are several others, however?

A. They are all of this same general type.

Q. I did not ask you as to the type. There are a good many other fountain drinks that color, similar to Coca-Cola?

A. There are a number of others.

Q. You stated, I believe, on your examination in chief that you thought there would be about an ounce and a half of syrup put in eight ounces of liquid. That would be mere estimate, would it not?

A. I have gone out and bought it and have actually measured the material.

Q. Yes. You called for it extra strong, sometimes would you not?

A. Sometimes.

Q. You would call for it extra strong, and when you

would call for it extra strong, they would give it to you extra strong?

A. Yes.

Q. And sometimes make you pay extra for it, would they not?

A. I never had to pay extra.

Q. They knew you were a Government inspector?

A. No.

Q. They did not know that?

A. No.

Q. Did you ever show your badge to them when you wanted to get it extra strong?

A. I don't think that I have ever shown my badge in my life, except to a few factories that I wanted to visit.

Q. A few what?

A. Factories.

Q. You do not show it around soda fountains then?

A. No.

Q. You would just go in and tell them you wanted to get a glass of Coca-Cola and get it extra strong?

A. Just as an ordinary consumer; yes.

Q. Is that the way in which you habitually drink it, Doctor?

A. I do not drink it habitually.

Q. How often do you drink it?

A. I never drink it excepting — I never drank it excepting during the period I was making experiments on myself.

Q. How long a period did they cover?

A. Oh, a couple of months.

Q. Then you never bought it at any fountains excepting during that two months?

A. Oh no. I did not buy it at the fountains then. I bought the real stuff that I knew was genuine, took it home, bought carbonated water and made it up myself.

Q. You just bought the syrup in kegs, would you?

A. In jugs.

Q. In jugs?

A. Yes, sir.

Q. So you never did buy it at the soda fountains?

A. Not for my own consumption; no.

Q. What did you buy it for?

A. For information.

Q. What did you do with it when they would sell it to you?

A. I disposed of it in various ways. Sometimes I would throw it away after I got the information I wanted; and the inspectors have brought a good many samples to me,

and we have those under seal.

Q. Talking now about the purchases you would make when you would go to a soda fountain and tell them to give you a glass of Coca-Cola, and make it extra strong, what did you do with that when they gave you that glass?

A. As I told you, I bought one in Nashville, and simply let it stand after I got the information I wanted, simply let it stand and let the proprietor do whatever he wanted to do with it.

Q. In other words, you never bought it that way to drink, did you?

A. Well, I might simply answer that yes.

Q. Did you drink it?

A. No.

Q. You did not buy it then for the purpose of drinking it?

A. No.

Q. You bought it for the purpose of seeing whether you could get it extra strong?

A. Yes.

Q. And that is all?

A. Yes.

Q. Now, you were asked, Doctor, about caffeine. You say caffeine is a drug?

A. Yes, sir.

Q. That depends on the manner in which it is used, does it not?

A. Caffeine, as such, is a drug. If it is ——

Q. Is it not a fact that caffeine is used about a hundred times more in beverages than it is in drugs, or as a drug?

A. Well, I am not able to answer that question.

Q. You do know this, however, Doctor, that the use of caffeine in beverages is vastly more extensive than the use of caffeine as a drug? The use of caffeine in beverages and food stuffs, is it not true, that that is vastly more extensive than the use of caffeine as a drug?

A. I think that is true; yes.

Q. The fact is, Doctor, that a vast number of foods are also used as drugs; is that not so?

A. Well, if they are used as foods, they would not be used as drugs. A drug may be a food one time and a drug at another.

The Court: There is no dispute about that, Mr. Sizer.

BY MR. SIZER:

Q. For instance, chocolate contains a drug, does it not?

The Court: You need not go into that.

Mr. Sizer: May it please your Honor, they brought out

the fact that caffeine is a drug: I suppose they deem that material. We want to show that other substances in common use also contain drugs similar in character.

The Court: That was not your question. You just asked him if substances were not used as food and drugs.

Mr. Sizer: I want to follow that up.

The Court: You may do that.

BY MR. SIZER:

Q. Chocolate contains a drug, does it not?

The Court: We will eliminate as I say all other food substances that do not contain caffeine.

BY MR. SIZER:

Q. Does not chocolate contain caffeine?

A. A trace.

Q. Does not it also contain another drug closely allied to caffeine?

A. Yes.

Q. That is Theobromine?

A. Yes

Q. Chocolate contains more theobromine than caffeine, combined, or together, than coffee does of caffeine, does it not?

Mr. Miller: I object to any inquiry as to theobromine.

The Court: The exception is sustained. We will limit this to caffeine.

Mr. Sizer: The witness says theobromine is closely allied to caffeine. As a matter of fact, we expect to show it is practically identical.

The Court: If you have a witness who is prepared to say it is identical, or practically so, you may go into that.

BY MR. SIZER:

Q. Did you say, Dr. Kebler, that caffeine is a poison?

A. It has poisonous properties; yes. It is of a poisonous nature; yes.

Q. On what do you base that statement?

A. Reading and observation.

Q. Is there any work on toxicology, or recognized authority, that classes caffeine as a poison?

A. Yes, sir.

Q. What work is that?

A. Kobert. Do you want me to give it in detail.

Q. No, I just want you to give the names of any authors.

A. Kunkel, Kionka, Lewin, Jaksch — that is a volume published as part of a series of books edited by Nothnagel, of Germany. Blyth speaks of it. Dragendorff, of Russia;

Guerin, of France; Gadamer, of Germany; Muccioli, of Italy; Vitalli, of Italy; Brundage; Bleucher, of Germany; and Drs. Vaughn, and Novy included in their book on Cellular Toxins.

Mr. Miller: What Dr. Vaughn, please.

The Witness: Dr. Victor C. Vaughn.

BY MR. SIZER:

Q. That is Dr. Victor C. Vaughn, who is present and has been present at this trial?

A. Yes, sir.

Q. How many of the books are books on toxicology, and how many of them are works on Pharmacology?

A. All the books I have mentioned are books on toxicology, dealing either specifically with all of the toxicological features, or books for determining and estimating poisonous substances.

Q. They all treat, you say, of caffeine?

A. Yes, sir; give the symptoms and poisoning conditions.

Q. And do they not also treat of every substance that has any pharmacological action?

A. No, sir.

Q. Have you those books that you refer to?

A. They are in my possession.

Q. Are they here?

A. They are in the city.

Q. In Chattanooga?

A. Yes, sir.

Q. Will you produce those books for examination here?

Mr. Miller: We will be glad to give him the references. if your Honor please.

Mr. Sizer: We would rather have the books.

Mr. Miller: The books are private property, belonging to the Surgeon-General, and we are not permitted to give them over. We brought them here for accessibility, and will give counsel references to those books and papers, if they like, but we are not prepared to send the Government property out of our possession. Some of them belong to the Congressional Library, Washington, and we borrowed them for the purpose of bringing them down, and we object to the witness turning them over to adverse counsel to deal with as he likes. We have no objection to his inspecting them.

Mr. Sizer: We do not ask to have them turned over to us. We want to have an opportunity to inspect the books.

The Court: I understand counsel are ready to bring the books and let you examine them.

Mr. Miller: We will be very glad to do that, with reference to the pages.

BY MR. SIZER:

Q. I will ask you to give the titles of the works of those you have, Doctor.

A. Shall I give the English equivalent.

The Court: Let him just furnish a list of them, and file it, giving references as to the pages, after he gets through, unless there is some particular thing about some particular work that you desire to examine him about now.

Mr. Sizer: Well, we will get him to give us the list.

The Court: Yes, and then you may examine him further, after that, if you wish.

BY MR. SIZER:

Q. How many of those works are English works, or American works?

A. Alyth's.

Q. What is the title of that one?

A. Poisons, Their Effect and Detection.

Q. What other American works have you?

A. Brundage, Brooklyn, New York, Manual of Toxicology. They are the only two that I have in English.

Q. And the others are German and French?

A. German, French, and Italian.

Q. Are you familiar with the works by Peterson, and Haines, called Textbook of Legal Medicine and Toxicology?

A. I am very well acquainted with the book.

Q. Is that recognized as a good authority?

A. Yes.

Q. Is caffeine in any way treated of or referred to in that work?

A. No, sir.

Q. What do you mean, Doctor, by the term "Poison"—wait just a minute. Do you know of a work by John J. Reese, M. D., entitled Textbook of Medical Jurisprudence and Toxicology?

A. I do. I have read it and studied it.

Q. Is caffeine in any way treated of in that work?

A. No, sir.

Q. Have you read Wharton & Stille's Medical Jurisprudence?

A. I have read part of it.

Q. The second volume of that is devoted exclusively to the treatment of poisons?

A. Toxicology; yes, sir.

Q. Is caffeine in any way referred to or discussed in that work?

A. It is not.

Q. Are you acquainted with the work by Theodore G. Wormley, M. D., P. B. D., LL. D., on Microchemistry of Poisons?

A. I have; I have a copy of it.

Q. Is caffeine in any regard referred to in that work?

A. No, sir.

Q. Are you familiar with Witthouse & Becker's Work on Poisons?

A. I am.

Q. Is caffeine treated of in that work?

A. No, sir.

Q. That is a standard authority, is it, in this country?

A. Oh, yes; a good book.

Q. Are you acquainted with Taylor's Principles and Practice of Medical Jurisprudence?

A. I am.

Q. Is that a standard authority?

A. Yes, sir.

Q. Is caffeine in any way treated of or referred to in that?

A. I have not found it.

Q. Those are all standard medical authorities in this country, are they not, and are standard toxicological authorities?

A. The latter one, edited by Dr. Smith, or whatever his title may be, is an English publication, not of this country. The others are, to the best of my knowledge, published in this country.

Q. This last one you refer to is read and studied a great deal in this country, is it not?

A. Oh, yes.

Q. And it is recognized in this country as a standard authority, is it not?

A. Yes.

Q. I want to ask you, Doctor, to refer to this work of Blyth's and state the page on which he treats of caffeine as a poisonous substance.

A. It is the last edition; I did not get the year of it. But it is page forty-one. You will notice there he discusses theobromine, caffeine, etc., and deals with the poisonous effect of caffeine upon lower organisms and gives the report of V. Lusina relative to the lethal dose of caffeine on the frog.

Q. And treats of the effect of caffeine on frogs and other lower animals?

A. He refers to that then.

Q. He does not treat of the effect of caffeine on a human being?

A. Just treats it as a general topic.

Q. You say he treats of it with respect to its effects on lower animals and frogs?

A. I said frogs.

Q. Does he call it a poison?

A. Oh yes; everything in that book is supposed to be a poison.

Q. In the manner in which he treats of it he treats of it as injected into the veins of these animals, does he not?

A. That part I do not remember.

Q. Do you not recall that he does not treat of the effects of caffeine when fed to lower animals at all, but only of the effect of it when hypodermically injected into the veins?

A. That feature of it I do not remember.

Q. What do you understand by the term "poison" docto, when you say that caffeine is a poisonous substance?

A. A poison is any chemical, which when introduced into the body or generated with the body produces death or disease or permanently or temporarily impairs an organ that is healthy or apparently healthy.

Q. As the term is popularly known, doctor, is it not confined to substances that produce death in comparatively small quantities?

A. That view is sometimes taken.

Q. Is that not the popular sense in which the term is used?

Mr. Miller: I do not think this witness is qualified to speak of that in the first place, and I believe that is not pertinent or revelant in any way as to how it is popularly understood. I submit that how the laity might understand it is not to be the rule in the case, or how the medical definition might define it is not to be the rule, but we define poison and then tell the effects of this on the human system.

The Court: Passing now from the question of whether the term is used in a technical sense or a popular sense, I think that in so far as the popular sense may be material, that the jury will determine that. I sustain the exception.

BY MR. SIZER:

Q. You say, doctor, poison is any chemical which may result in the impairment of a function?

A. Yes.

Q. It does not depend then upon the degree of the im-

pairment of the function?

A. No. If it impairs the function it is a poison.

Q. Suppose a substance, instead of impairing a function, enhances it; that is directly opposite to a position then?

A. If it enhances it, it might be considered non poison.

Q. What you call "anti poison"?

A. Not necessarily.

Q. Non poison. At any rate the fact is that the effect of caffeine, the primary direct effect is to enhance the performance by some of the organs of their normal functions; is that not true?

A. No; it acts on the part and absolutely causes death by paralysis of the heart.

Q. Did you ever hear of a case, or did you ever personally know of a case of caffeine causing death by paralysis of the heart?

A. I know of a case; yes.

Mr. Miller: What I wish to understand is whether counsel wishes to withdraw that part of his question as to whether he ever heard of it.

Mr. Sizer: I want to put that separate — and I want to withdraw it for the present.

Mr. Miller: All right.

BY MR. SIZER:

Q. Did you ever know personally of a case?

A. No.

Q. Did you ever hear of a case of caffeine, the use of caffeine resulting in paralysis of the heart?

A. Yes, sir.

Q. Where was that case?

A. Zenetz reports three cases.

Q. Are those the same cases referred to by one of the other witnesses on yesterday?

A. Yes. Another author reports another case.

Q. What was the quantity of caffeine taken in those cases?

A. I don't remember all those points. The first case— that of a healthy woman, twenty-two grains all told. After taking ten powders ——

Q. (Interrupting) Ten powders of what?

A. Of caffeine. Wait a minute ——

Q. (Interrupting) How many in each?

A. Taking ten powders of citrate of caffeine, containing three tenths of a gram or four and one-half grains.

Q. Four and one-half grains each?

A. Yes, sir.

Q. Ten powders containing four and one-half grains of caffeine each, a day?

Mr. Miller: No, not caffeine, he did not say that.

BY MR. SIZER:

Q. Citrate of caffeine. Well, citrate of caffeine is about one half caffeine, is it not?

A. Yes, sir.

Q. That would be then, about two and a quarter grains each?

Q. How rapidly were those doses, those powders, taken?

A. Taken during the period of a day as far as I can see.

Q. Go on with the other cases and state the details as to them.

A. In the second case, death resulted from the taking of three grains of caffeine citrate, in three doses per diem, over two days.

Q. Where was that case reported from?

A. That was Zenetz.

Q. I mean, where did the cases occur? What were the circumstances of them, and what was the age and sex of the person?

A. It is a male. What the age was I do not know.

Q. Have you anything in that report to show the conditions under which it was given, or the state of health of the person?

A. Yes, he was — dissipation was reported. He is reported as having suffered with pneumonia, or was suffering with pneumonia.

Q. Yes,—from dissipation?

A. Yes.

Q. And then they gave him six doses of caffeine and he died?

A. Yes.

Q. When was that report made?

A. 1899.

Q. What is the other case you have got there?

A. The other case is that of a young woman taking, according to the best estimation as given, approximately thirty grains of caffeine during the period of a day.

Q. What was the matter with her before she took the caffeine?

A. She was apparently suffering with Bright's disease?

Q. And she took thirty grains of caffeine and died?

A. Yes; in a day.

Q. What are the details of those other cases you have got?

A. Gautherin, the same case as referred to here before.

Q. Those are the same cases?

A. Referred to here this morning; yes.

Q. Go on. If there are any different cases than those you have been speaking about, I want the details of them.

A. This person took in a day, as far as I can get it here, from 22 to 30 grains per diem, per day.

Q. Is that the case where caffeine was administered by mistake to a patient suffering from typhoid fever?

A. Yes. These cases are reported to Guatherin by Chantemesse. He attributed the death due to the action of the caffeine on the heart. The patients were apparently suffering from typhoid infection.

Q. It is not surprising, if a man is suffering from typhoid infection and is given thirty grains of caffeine in a day, that he dies, is it?

A. They gave the drug with a view to reviving the patient.

Q. And instead of reviving him, it killed him?

A. In this case it did.

Q. Have you got any other case?

A. Lemaine reports a case where two children were suffering with diphtheria, age twelve years, and the exact quantity of caffeine they received I have not calculated here.

Q. Children, you say?

A. Children twelve years old. Both of them received the same quantity of caffeine. One died and the other survived. They apparently received, in one injection of — let me put it in the common system,—of three grains per injection.

Q. Injected it into the veins?

A. Yes, sir; it was; simply says injected.

Q. At any rate, it was injected and not taken through the mouth? That is what that means?

A. That is what it says.

Q. What was the trouble with the children? Why did they give them the caffeine?

A. I stated they were suffering with diphtheria.

Q. And did they give that caffeine all in one day?

A. It says "Injection."

Q. All at one time; and one of them died and one of them did not?

A. That is what it says.

Q. Are those the only cases you have reported, now?

A. Those are the only ones I have.

Q. Those are all cases, Doctor, in which excessive doses

of caffeine were given to people already suffering with some disease?

A. I do not want hardly to make that statement. The doctor knew the conditions under which he was giving the caffeine and I hardly would consider myself in a position to criticise a medical man as giving an excessive dose.

Q. At any rate, they were people who were suffering with some disease, and were given large doses of caffeine?

A. They were suffering with some infirmity.

Q. And were given large doses of caffeine?

A. I consider them large doses.

Q. Is there anything in the report that you have there to show whether they died from caffeine, or from the diseases they were suffering with?

A. The authors report that fact. Zenetz states specifically that post mortem showed that the heart was very firmly contracted, which is due to the action of caffeine.

Q. That is one of the cases?

A. The three cases, all three of them. The third one was reported as having died of the same conditions, but just which one I do not have here.

Q. Do those reports show that autopsies were performed in all those cases?

A. Apparently.

Q. Do the reports show it?

A. Yes.

Q. In all of them?

A. Yes, those four.

Q. Now, is it not true that the diseases with which those people were suffering in each case would have had a tendency naturally to have weakened the heart?

A. Yes; the caffeine was given to support the heart.

Q. But the diseases themselves had impaired the heart action?

A. Qnite possibly.

Q. Is it not true, Doctor, that when caffeine is taken in small or moderate quantities, as it is usually taken in beverages, that it acts as a distinct stimulant to the brain, the nerve muscles, and thereby enhances the performance by the organs of their normal functions?

A. It stimulates the brain, but by so doing it impairs the action of the function of the brain by over-working the brain and causing impairment in that way, just the same as strychnine. When it is introduced it causes acceleration, or causes reflexes or nervousness, and in that way impairs the ability of the individual.

Q. Do you mean to assert now, Doctor, that every time a person takes caffeine in the form of a beverage, as it is

found in coffee, Coca-Cola, or anything of that kind, that the effect of that drink is to impair the mind?

A. I don't know as I want to say that as a general proposition. It will depend upon circumstances.

Q. As a matter of fact, it always does enhance his mental faculties and improve them and brighten his mind?

A. No.

Q. For the time being?

A. No, I do not think so. I think quite the contrary. I would like to illustrate. Where I got my first impression relative to the effect of caffeine, it was at the Jefferson Medical College, listening to the lectures and the professor talking about caffeine?

Q. You need not mind what the professor told you. I am asking for your own knowledge.

Mr. Miller: Give your own impression.

Mr. Sizer: I object to his testifying what some medical lecturer stated as to the effects of caffeine. I am examining him on his own knowledge.

Mr. Miller: What the witness said is that he would like to illustrate, and I submit he has a right to do that.

The Court: He may illustrate.

Mr. Miller: Give your illustration, that you started to do.

General Cox: Resulting from what you heard the doctor say, if necessary.

The Witness: He stated that ——

Mr. Sizer: Hold on, Doctor. That has been ruled out.

Mr. Miller: The illustration you started to give, Doctor. It makes no difference where it came from—the point is, your illustration that you wish to make.

The Witness: I cannot give it under the circumstances because it was the information as I obtained it from the lecture room.

Mr. Miller: Very well, then.

BY MR. SIZER:

Q. Is it not a fact, Doctor, and so stated in all medical works treating of the subject at all, that the primary effect of caffeine is to stimulate the mind and the muscles?

A. Yes.

Q. Suppose a man takes a cup of coffee in the morning for breakfast and he is stimulated thereby and goes out and performs his daily work better than he otherwise would; how long would it take the stimulation of that coffee to pass away?

A. I could not answer that question.

Q. You are sufficiently expert to be able to answer that.

A. If you will give me the conditions under which the individual was laboring, the sex, the age, the environments, and all the details of that character, I would be in position to answer your question.

Q. Caffeine is recognized as being a substance that is rapidly eliminated, is it not?

A. Not necessarily.

Q. It is not so considered?

A. Some authorities state that it is cumulative.

Q. How long does it take the amount of caffeine that would be found in an ordinary cup of coffee, for instance, to be eliminated from the body?

A. That would depend upon conditions.

Q. Well, then, say an ordinary, normal individual.

A. I have never experimented on that point.

Q. You are not able to testify on that point?

A. I am unable to say when it would be eliminated, or how soon.

Q. Suppose that individual that I have referred to a while ago takes a cup of coffee and goes out and does his morning work and feels better from the effect of it; you would not say that any deleterious results necessarily followed that, would you?

Mr. Miller: I object to that, as argumentative, on the hypothesis that there is no basis for it at this time.

Mr. Sizer: He has testified as an expert as to the effect of caffeine and I want him to go into the details.

The Court: He has not testified on direct examination that those are deleterious. You are bringing up another question now. I think the question of the meaning of the word deleterious is not for experts. It is one for the jury, under the charge of the Court. Experts may, of course, testify to what the effects are, but whether those effects are described properly under the head of deleterious is not a question for an expert.

BY MR. SIZER:

Q. Suppose an ordinary, healthy individual takes a cup of coffee in the morning, what deleterious results would follow from that, as a general rule?

A. There might not any follow.

Q. As a matter of fact, is it not true that in 999 cases out of a thousand no deleterious results follow?

A. I am not prepared to state that definitely.

Q. Suppose a man is accustomed to taking a cup of coffee for breakfast, and another cup for lunch.

A. Yes.

Q. What deleterious results would ordinarily follow from that?

A. I think that man, keeping that up for a goodly length of time, several years, would suffer as the result.

Q. In what way?

A. Become nervous, become irritable. Probably lose sleep. It would depend entirely upon conditions. You restricted the time, did you not, as to morning and noon?

Q. How long would it take an ordinary, healthy man, drinking two cups of coffee a day, to develop those symptoms you have testified about?

A. I would not be able to answer that question.

Q. Are you able to answer as a matter of fact that it would result in any such consequence at all?

A. There is no question in my mind but that it does.

Q. Does it always?

A. No, not always; but it does result in those conditions.

Q. Does it result in those conditions in the majority of cases?

A. Or normal, healthy individuals?

Q. Yes.

A. If you will define to me what the normal, healthy individual is, I would be probably in position to answer the question.

Q. Don't you know what a normal, healthy individual is?

A. Take for example — there are a good many people in this room who apparently look healthy and normal, but they may not be healthy and normal. They may be nervous, excitable, and irritable. A cup of coffee to those individuals would be probably very deleterious.

Q. What I want to get at now is your opinion as an expert on the question of whether or not drinking two cups of coffee a day by a normally healthy individual would result in deleterious consequences, and if so, how long it would take to so result.

A. I think I have answered that question.

Q. How did you answer it?

A. That such a taking of coffee may injuriously affect that individual by causing nervousness, irritability, sleeplessness, by drawing upon his reserves, and may ultimately break him down.

Q. And on the other hand it may not affect him so?

A. It may not.

Q. And in the majority of cases it would not so affect him; is not that true?

A. Well, I am not prepared to make that statement.

Q. Suppose a man takes three cups of coffee a day, being a normally healthy individual; would that necessarily result injuriously to him in any way?

A. That man would come to the grave, sooner or later.

Q. How long will it take him to come to the grave?

A. Well, I do not know.

Q. Do you assert that now as a universal rule?

A. No.

Q. Do you assert that would follow in the majority of cases?

A. No, I would not say that.

Q. Do you know whether it would follow in a majority of cases or not?

A. No; it will not follow in a majority of cases, but it will follow in many cases.

Q. But as a general rule — you say now as an expert that a man might not safely drink as much as three cups of coffee a day without deleterious consequences?

A. He might; yes.

Q. And probably would in a majority of cases?

A. A strong healthy individual, yes; a healthy, normal individual, he might.

Q. Well, the drinking of a cup of coffee or a cup of tea, if a man likes it, results in benefit to him in that it makes him feel better?

A. Well, you might say the same of whiskey, morphine or opium.

Q. Well, I was not talking about whisky, morphine or opium just now, but about coffee. If it makes him feel better is it not to his benefit?

A. Not necessarily.

Q. You do not think it benefits him to feel better?

A. That depends.

The Court: That is immaterial.

BY MR. SIZER:

Q. If it enables a man to do his work better, is it not of advantage to him?

A. Temporarily.

Q. And then, going back to the proposition I started out on a while ago, the primary result of a moderate taking of caffeine as a beverage is beneficial to the man, is it not, the direct and immediate result?

A. You are talking about the average healthy individual?

Q. Yes.

A. I do not think it is.

Q. You do not think it is of any benefit to a man to

feel better and be able to do his work better?

Mr. Miller: That statement is argumentative.

The Court: Let him give his opinion as to what the effect is, and then whether he calls it beneficial or not is immaterial.

BY MR. SIZER:

Q. Do you drink coffee yourself, Doctor?

A. Occasionally.

Q. How occasionally?

A. When I am at home, I do not drink any; but when I go out where I cannot get the beverage I want, why, I might drink a cup of coffee.

Q. Why do you drink it?

A. Because I have not anything else to drink that I like.

Q. You like it, then?

A. Under the circumstances; yes.

Q. What is the beverage you ordinarily drink?

A. Water; warm water, sugar and milk.

Q. Do you ever go to places where you cannot get water?

A. I get to places where I cannot get warm water of the character I want; yes.

Q. And when you cannot get warm water of the character you like, you say you drink coffee?

A. Yes.

Q. Do you drink tea?

A. No, sir.

Q. You never have done it?

A. Well, I probably have drunk ——

The Court: Are you intending to ask this witness of the effect of these drinks on him? If not, it is immaterial.

Mr. Sizer: Yes; I want to ask him all about it.

The Witness: I probably have drunk eight or ten cups of tea in my life.

BY MR. SIZER:

Q. Why did you drink it?

A. Well, sometimes ——

The Court: (Interrupting) I understood him to say that he had only drunk eight or ten in his life. If that is all, we will not stop to go into that.

BY MR. SIZER:

Q. Do you drink coffee, though, quite frequently?

A. No, I have drunk, since I have been in Chattanooga, probably one cup.

Q. Do you not feel better when you drink coffee?

A. It depends entirely on when I drink it.

Q. It stimulates you when you drink it?

A. When I take it at night I do not go to sleep.

Q. As to coffee taken at night, is it not a fact and so stated in a great many medical works, that very often coffee induces sleep?

A. Occasionally; it depends on the condition of the individual.

Q. So it is not true universally that the taking of coffee will produce wakefulness?

A. No.

Q. Is not this further true: That when a man becomes accustomed to taking coffee, he can take more without experiencing any untoward effects — that is, if he is accustomed to taking it?

A. With a normal individual; yes.

Q. He acquires what is known as tolerance for coffee?

A. Yes.

Q. And so a man may go over a series of years and take coffee from day to day in the same quantities without it affecting his health prejudicially?

A. I think I have answered that question.

Q. Another thing: Coffee contains some other substances besides caffeine, does it not?

A. Yes; yes, sir.

Q. It contains, for instance, a substance known as coffeal, or empyreumatic oil?

A. Such a substance has been reported.

Q. And it contains tannin?

A. Some.

Q. Now, that coffeeal is a stimulant itself, is it not?

A. Some writers say so.

Q. That is a substance developed in the roasting of the coffee, is it not?

A. Yes.

Q. And it has a tendency to make a man bilious sometimes, does it not?

A. A what?

Q. A tendency to make a man bilious sometimes?

A. I don't think there is any evidence on record that will show that.

Q. Did you ever hear of coffee making a man bilious, under certain circumstances?

A. I have heard that word bilious used in connection with coffee, but there is no evidence whatever to show it is due to coffeal or any other single ingredient.

Q. I am just asking you about whether you ever heard

of coffee producing biliousness?

A. I have heard that; yes, sir.

Q. Have you not also heard that was due to the effect of the coffeal in coffee?

Mr. Miller: What he has heard stated is one thing, and I object to that. If he asks whether that is laid down in works known as standard authorities, then I do not object. object.

BY MR. SIZER:

Q. I will ask him, then,—if laid down in works of standard authorities you have ever seen that statement.

A. I have never seen that.

Q. It is true, is it, Doctor, that a great many substances, in fact almost all substances are harmful when taken in excess, and are not harmful, and may be beneficial when taken in moderation?

A. Yes.

Q. For instance, a man might eat too much meat and experience deleterious results?

A. That is true.

Q. Or it is possible that he might drink too much water?

The Court: Those matters are obvious.

BY MR. SIZER:

Q. Did you speak of caffeine as a chemical product, Doctor?

A. I did.

Q. You mean by that term the same as a drug?

A. Yes, sir.

Q. You say that a poison, I believe, is a chemical or a product that the use of which ——

A. No; I said poison as a chemical. The poison is induced by the action of the chemical. A chemical may be a drug, but not all drugs are chemicals.

Q. What chemicals are there that are not drugs?

The Court: What is the bearing of that distinction?

Mr. Sizer: I do not think there really is any distinction. I am just trying to find out.

The Court: I do not see the bearing.

BY MR. SIZER:

Q. Do you say caffeine is a drug and also a chemical?

A. Certainly.

Q. I want to know what the difference is between a chemical and a drug.

A. A chemical may be a drug, and a chemical simultan-

eously, but all drugs are not chemicals.

Q. I want to get at the distinction that you draw between a drug and a chemical.

A. For example, kola and coca are drugs, but they are not chemicals.

Q. Why not?

A. Because they are plant substances composed of a multitude of substances, some of which are chemicals and some of which the nature of which we have no knowledge of whatever.

Q. Now, to get at your distinction, is salt a chemical?

A. Oh, yes.

Q. Is salt a poison?

A. In large quantities, yes.

Q. Is it a poison in small quantities?

A. No.

Q. Would you, in the same manner in which you have defined caffeine to be a poison, call salt a poison?

A. Yes.

Q. Is mustard a poison?

A. Mustard contains an agent that is highly poisonous.

Q. In small quantities mustard is recognized as a legitimate article of food, is it not?

A. Oh, yes.

Q. Now, about spices of various kinds. They are chemicals, are they under your definition?

A. They are condiments.

Q. Are they chemicals?

A. Oh, no.

Q. Are they drugs?

A. Yes, they may be so used, but they are generally employed as condiments.

Q. How about pepper?

A. Pepper contains a very violent poison.

Q. At the same time pepper in small quantities is recognized as a legitimate food substance?

A. Oh, yes, certainly.

Q. Or condiment?

A. Certainly.

Q. So the fact that a substance may be a chemical, or that it may in a certain quantity result deleteriously to the system, does not in all cases brand it as a poisonous substance,or as a substance unfit for food?

Mr. Miller: I think that is argumentative.

The Court: I think that is true.

Mr. Miller: Your Honor please, I move to exclude the examination with respect to pepper, mustard, and salt and spices because it is not, as to them, pertinent or relevant,

there is no caffeine shown to be in those.

The Court: The purpose of the cross examination, as I understood it, was to show the way in which this witness used the term "poison", and the court holds it is competent.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. I understand you to say that there is in pepper, and in mustard a certain poisonous substance?

A. Yes, sir.

Q. And that salt if taken in a large quantity may become poisonous?

A. Yes, sir.

Q. Is there or not a poisonous substance that may be extracted from peaches?

A. Oh, yes.

Q. What is it?

A. Peach kernels; hydrocynic acid.

Q. I will get you to state whether or not that is one of the most deadly poisons in the world?

A. Oh, it is.

Q. Now, with respect to dirt getting on these stringers and getting into these tanks, I will get you to state whether or not what counsel term as a stringer and which are termed as joists, are all part of the floor, the underpart of the floor, or form the floor above the basement?

A. Yes, sir.

Q. Was it possible for you to climb out on those joists without taking up the planks that formed the floor?

A. Could not get at the joists ordinarily.

Q. Now, you stated, as I understood you, or at least the question was put as to whether or not this product without more had been bought and sold to your knowledge for a number of years under the name of Coca Cola. Now, did you or not mean to say that a product of this kind, or the constituent elements that was seized in this case, and about which this controversy arises, has been for a number of years sold as Coca Cola?

A. Yes, sir.

Q. A product that has got the same elements as this one here?

A. Formerly — the composition of it was different.

Q. I am asking you whether or not the composition, or a composition of this kind, with these same elements to your knowledge had been for a number of years sold as Coca Cola, or whether you know how that is?

A. Formerly as it was sold the product contained a certain amount of cocaine.

Q. Of cocaine?

A. Yes, sir. And this product also varies in composition, that is the preparation sold to the fountains is of a different constituency from that sold to the bottlers, it is not of uniform composition by any means, and then did you or not intend to state that a product was sold under the name of coca cola and did you state anything more as to its composition ——

Mr. Sizer (Interrupting): I object to what the witness may have stated — the statement is all before the jury.

The Court: If that is the only ground of objection I overrule it.

BY MR. MILLER:

Q. What did you intend to state by stating and by answering in the affirmative to adverse counsel that this product had been sold on the market for some twenty years?

A. A general product that had been put out — nothing specific.

Q. Did you or not mean to imply that it contained the constituents and the full constituents that are shown by the analysis of this product?

A. Advertised and sold over the entire period of its existence ——

Q. Now when was this cocaine taken out of it?

A. About 1893 or 1894, I don't know exactly.

Q. Now, as to the term "dope", where "dope" and coca cola were called for I will get you to state whether or not you have seen in response to these calls the emission from the same faucet by the dispenser?

A. Repeatedly.

Q. State whether or not that is usual and customary in this section of the country?

A. It was — up to a year or so ago — no, up to about a year or so ago both products were on the market. I have not seen the article known as "dope" on the market recently, but all calls for dope within the last year have come out of the same spicket that coca cola has come out of when called for.

Q. Now, state whether or not this dope was bought by the Coca Cola Company and utilized for its benefit?

A. I have heard so.

Mr. Sizer: I object to that.

The Court: The exception is sustained.

Mr. Miller: I wish to be heard a moment on that point.

The Court: He says he heard so, and I do not care to

hear any argument. I sustain the objection on the ground that it is hearsay.

Mr. Miller: I would be most pleased to submit to your honor that he was asked on cross examination as to advertisements. Advertisement is circulation of information — he was asked this question. I made a note of it: whether he had ever known of the Coca Cola Company advertising or putting on the market a product known as "dope" or that was called "dope." Now I propose to show that he has heard of such an advertisement, and that way that I can prove that is just in response to counsel's cross examination.

The Court: You may ask him if the Coca Cola Company advertised this product by the name of "dope" — you can't prove anything he learned by hearsay, and I sustain the exception.

Mr. Miller: I move then, may it please your Honor, to exclude adverse counsel's question which was in substance whether this witness had ever heard of the Coca Cola Company advertising or putting on the market a product known as "dope."

Mr. Sizer: I didn't ask him that.

Mr. Miller: I submit it was asked, and I move to exclude it.

The Court: I over-rule the motion. I don't think that question was asked. I have no recollection of any question being asked of that sort. My recollection is that the question asked was whether they had ever sold this product as "dope" and he was not asked whether they had sold some other product as "dope."

Mr. Miller: The advertisement was particularly asked about of this witness.

The Court: However, I do not see how that would be competent if it was some other product and some one bought it under the name of "dope," I don't see how it would have anything to do with this case.

BY MR. MILLER:

Q. These coffee extracts that you have referred to as being sold at fountains, do you know what they contain, did you ever analyze it or not?

A. No, sir, I don't know anything about its composition.

Q. Is there any uniformity or uniform glass in which this mixture of coca cola is served as to the size of the glass?

A. No sir, there are several sizes of glasses employed. Sometimes what is known as the seven ounce glass and

then there is another size glass used, the exact volume of that I do not remember, but it is very materially larger than the other. Frequently these larger sized glasses are used for the purpose of supplying these people who call for extra strong coca cola.

Q. State whether or not extra strong coca cola or words implying that is called for?

A. Yes, sir.

Q. What names are employed to call for extra strong coca cola when desired?

A. Well, "give it to me strong."

Q. Did you ever hear the term double header used in that connection?

A. Yes, sir, I have heard that name also, and it is sometimes called for by inference as this "I am way down, and out, I want a coca cola."

Q. Now, you were asked whether you — remembered the name of that man in Washington that took the syrup straight. Did you ever know his name?

A. No, sir.

Q. What would be the effect or the probable effect of taking a cup of coffee, containing caffeine, either one or more cups with meals, and then subsequently following that with one or more glasses of coca cola, as it is usually and generally served in Atlanta, and in other sections of the country, at the time of this seizure and immediately prior, that is doses of from one to one and a half or two ounces of syrup?

A. Why, the effects of the coffee would be multiplied immediately, and continued over a greater period of time, and coca cola acts more vigorously than coffee, that is cup for glass, or quantity for quantity.

Q. Now, what is the difference between free caffeine, if there be any, and caffeine that is found in the coffee bean?

A. The caffeine in the coffee bean is in combination with natural bodies present in the coffee, and in the form in which it is used in coca cola it is a free substance.

Q. State whether or not it has in that freed state when separated from the natural combination a more marked or quicker effect?

A. My experience is that it has a more marked effect and quicker.

Q. When you stated that deleterious results may not follow the taking of one or two or even three cups of coffee in a healthy or robust individual, state whether or not you intended to imply that the deleterious or injurious results

might not follow in the case of persons who were not of that robust type?

A. Usually and frequently it does follow in those individuals.

Q. In what class of individuals are the deleterious effects of caffeine the most noticeable and marked?

A. Children. Children from two years up to adult life; in women of a nervous temperament, and women during their periods of depression and in the unborn child that the mother is carrying.

Q. What proportion of the population of the United States is composed of women and of persons under the age of eighteen years?

Mr. Sizer: I object to that; he has not qualified as a statistician.

BY MR. MILLER.

Q. I will ask you, Dr. Kebler, and I will ask leave to recall him — we have the standard statistics here to show that — if you will ascertain for us the proportion of the population, according to the last census that constitutes all the children, that is between the ages of two and nineteen years, and all women, if you will obtain that and file it as exhibit No. 4 to your testimony?

A. I will try and get the information.

Mr. Miller: We have the statistical data, and I take it that we won't disagree about it.

Mr. Sizer: If the statistics are here, they are the best evidence.

Mr. Miller: I do not mean the records are in the court room, but I take it we can produce the volume of census reports, and then have him copy it.

The Court: I do not see that the question as to whether there are more women and children is very material; the jurors will know about that anyhow, but it will be all right to file it.

Mr. Miller: We will ask to have this filed.

BY MR. MILLER:

Q. Is there or not what is known as susceptibility or idiosyncrasies as respects caffeine that is noticed individually of various kinds?

A. Yes.

Q. What do you mean by that?

A. That is an individual is usually susceptible or acted upon more vigorously than an average individual. An average individual can take two or three grains of quinine sulphate without any trouble, and can take even more than

that, but other individuals who are particularly susceptible to quinine, are actually poisoned by a grain or a half grain or less.

Q. State whether or not the length of time for developing the poison incident to caffeine or any other drug depends upon the suceptibility of the individual, and the relative tolerance of his system?

A. Yes, sir, and on the rapidity of the absorption.

Q. What is the ultimate effect of the temporary advantage, if there be one, incident to the drinking of caffeine, and the stimulating of the brain or the nerve centers?

A. Oh, there may be a temporary effect of value and an advantage in the use of caffeine ——

Q. (Interrupting) But I say what is the ultimate effect?

A. (Continuing) And there may be a temporary advantage, but the ultimate effect is nervousness, the breaking down and sometimes — well nervousness and breaking down.

Q. In a majority of cases does a minute dose or any caffeine stimulate the brain and conduce to wakefulness and sleeplessness?

A. Yes, it does, particularly if taken in the latter part of the date.

Q. State whether or not that is universally recognized by the medical authorities?

A. Restlessness and sleeplessness are always conducive to the impairment of health, and so recognized by the medical profession.

Mr. Sizer: That would be evidence in chief and I object to it.

The Court: I am not ruling strictly on that just now, so long as I do not think either side does not go too far.

BY MR. MILLER.

Q. As to the quantity, state whether or not the most deadly poison may be taken in sufficiently minute particle so that there is no observable effect?

A. Yes, sir.

Q. As to these reported cases of death due to caffeine poisoning; state what was the condition of the heart as there reported, whether or not it was from contraction or expansion.

A. The observer reported the heart had very strongly contracted, so it was difficult to cut with a knife.

The Court: I will have to ask that the gentlemen refrain from comment or any gestures or anything of that kind; I must ask that that be strictly observed.

BY MR. MILLER.

Q. If a patient had died from disease in some of the cases in which he had been reported to have been suffering, what likely would have been the condition of the heart, would it or not have been in that contracted condition, that is as from pneumonia, nephritis and diphtheria?

A. Well, I am not in a position to answer that question.

Q. As to this case reported by Zenetz—that is a woman —I will get you to state whether or not it was reported that she was free from organic lesion?

A. That is the statement made.

Q. Is there anything in connection with that report to show that the woman was in anywise afflicted?

A. The statement there stated that she was not well, but was going about her duties.

Q. Free from organic lesion?

A. That would be the statement.

RE CROSS EXAMINATION,

BY MR. SIZER:

Q. Dr. Kebler, when did you analyze coca cola, and find that it had cocaine in it?

A. I did not analyze it to find cocaine.

Q. As a matter of fact you do not personally know that it had ever had cocaine in it?

A. Not from my personal analysis.

Mr. Sizer: I move then to exclude that statement of the witness made on re-examination that it at one time, coca cola, had cocaine in it.

The Court: The motion is sustained and that portion of the answer on re-examination is excluded. You understand, gentlemen of the jury, that heretofore whenever motions are made to exclude testimony and the Court sustains the exception and excludes it, that means you are to leave it out of your consideration and treat it as if you had not heard it — it is not legitimate matter to be considered by you.

BY MR. SIZER.

Q. You stated that on re-examination coca cola acted more vigorously than coffee.

A. Yes, sir.

Q. How do you know that?

A. From experience.

Q. On yourself?

A. Yes, sir.

Q. Is it true that coffee sometimes acts more vigorously

with certain people than tea does?

A. I couldn't answer; I am not in position to answer that question.

Q. Don't you know it to be true that some people are more readily affected by tea than they are by coffee, and vice versa?

A. I can't state that from my own knowledge.

Q. Well, isn't that a well known medical fact?

A. I don't know.

Q. You never heard of that sort of proposition?

Mr. Miller: I object to that statement as to whether he heard of that sort of a proposition.

The Court: The exception is sustained; let it be limited to the point as to whether or not he knows it or has seen it as a scientific statement.

BY MR. SIZER:

Q. It is true, doctor, there are a great many idiosyncraisies in the use of coffee and tea, and caffeine containing beverages, with respect to the effect they have on particular individuals?

A. I think I spoke about the idiosyncrasies.

Q. Isn't it true that the hot drink is absorbed more readily than a cold one, and consequently its effects are greater?

A. That is the general belief, yes.

Q. What is there in coffee that in any way modifies the effect of the caffeine in it?

A. I would like to explain that.

Q. Well, that is what I want you to do, go ahead?

A. Coffee, caffeine coffee, is in combination, the caffeine in it is, and associated with a considerable number of substances, some of which are gummy, and otherwise, and the coffee is introduced into the system at the time of the meals, or very often that way, and that retards the absorption of the caffeine, that is the rate of absorption. It is true when it is warm it may be absorbed more quickly, but in the case of coca cola there is present carbonated acid gas, and that has an effect; that effects the stomach by irritating it and causing the caffeine to be absorbed more quickly. The coca cola, on the other hand, is comparatively free, if not altogether free from these coalloid compounds or gummy substances that I have spoken of, and therefore the conditions are excellent for rapid absorption of the caffeine.

Q. The only effect in the difference of coca cola and coffee absorption in connection with which the caffeine is found in coffee would cause to tend it to be absorbed more

slowly than the caffeine in coca cola, is that it?

A. Yes, sir.

Q. Now, you were present at the examination of a number of experts whose depositions were taken on behalf of the government in this case?

A. Yes, sir.

Q. Those were all eminent scientists were they?

A. Yes, sir.

Q. And didn't they all testify that there was no difference between the effect of caffeine as taken in coffee and as taken in coca cola?

Mr. Miller: I object to that.

The Court: The objection is sustained.

Mr. Sizer: He has testified as an expert and I want to know what he has to say with respect to the correctness of that view.

The Court: A statement as to the testimony of other witnesses' testimony in this case would not be competent; you may ask him if he recognizes a statement in a standard work but as to the testimony of other witnesses it would not be competent.

BY MR. SIZER:

Q. In so far as any personal experience with the comparative effects of caffeine in coffee and coca cola, you speak from your own experience with the two substances?

A. Yes, sir.

Q. How much longer does it take you to absorb caffeine out of a glass of coca cola or feel the effects of a glass of coca cola, or how much sooner than the effects from coffee?

A. If I took coffee on an empty stomach it will take me from a half an hour to an hour to feel the effects of the coffee, whereas in the case of coca cola, the effect is experienced within fifteen or twenty minutes.

Q. Then, if experienced more quickly it passes off more quickly?

A. No, sir, it does not; that is just the difference. The point is simply this; the system is enabled to take care of a certain amount of this material and if it is introduced more rapidly than it can be handled by the system it produces more marked effects.

Q. Well, these effects last how long?

A. In which case?

Q. Well, in either case, take a cup of coffee or a glass of coca cola, how long will the effects as experienced from caffeine in these substances last?

A. In the case of coca cola the effect is much more marked and continues to about the same period of time as

in the case of coffee, but in the case of coffee the effect is much more milder because of the fact that the caffeine is absorbed freely.

Q. You say the effect is much more marked and that a man's mind is more strongly stimulated or muscles are more strongly stimulated if you take a drink of coca cola than a cup of coffee?

A. No, I may have the headache — take a cup of coca cola or a glass of coca cola and the effect in the coca cola is experienced in a comparative short time — it removes your headache more quickly than in the case of coffee.

Q. Does it stimulate your mind more strongly?

A. I am not prepared to say that it does.

Q. Its stimulating effect is not any greater than that of coffee?

A. I don't know about that; I am not prepared to answer that point.

(Thereupon, at two o'clock p. m., Court adjourned until nine o'clock Thursday morning, March 16, 1911.)

A. Yes, sir.

CHATTANOOGA, TENNESSEE.

THURSDAY, MARCH 16, 1911.

NINE O'CLOCK, A. M.

The Court met pursuant to adjournment.

Appearances, the same as on Yesterday.

PLAINTIFF'S EVIDENCE CONTINUED:

L. F. KEBLER,

resumed the stand for further

CROSS-EXAMINATION,

Mr. Sizer: We understood, your honor that they were going to put on another witness this morning. We have some data with respect to Dr. Kebler that we left over at the hotel.

Mr. Miller: We would be very glad to have Dr. Witherspoon follow; he is not in the court room.

The Court: You might proceed with the cross examination of Dr. Kebler and desist when Dr. Witherspoon comes.

BY MR. SIZER:

Q. Dr. Kebler, you referred on yesterday to a number of works which were works on toxicology, and which you said treated of caffeine. Among others there was Kionke; what nationality is he?

A. I don't know what nationality he is.

Q. Do you remember what language that work is written in?

A. German.

Q. The same author treats of lactic acid under the head of poisons?

A. Yes, sir.

Q. Lactic acid, that is in buttermilk, sour milk?

A. Yes, sir.

Q. He also treats of tartanic acid, that is an acid from grapes.

A. Yes, sir.

Q. And citric acid?

A. Yes, sir.

Q. And that acid is in lemons and oranges?

A. Yes, sir, and all are poisonous in large doses.

Q. In what doses?

A. Yes, sir.

Q. Now, Kobert is another one of the authorities you refer to?

A. Yes, sir.

Q. And he also treats of these same substances?

A. I don't remember now, he might.

Mr. Miller: If you will suspend, we will put Dr. Witherspoon on the stand.

Mr. Sizer: All right.

(Witness Excused).

EXHIBIT TO DR. KEBLER'S TESTIMONY.

JMD MARCH 17, 1911.

PERCENTAGE OF CHILDREN OF THE POPULATION OF THE UNITED STATES FOR THE YEARS 1880, 1890 AND 1900.

	1900	1890	1880
1 to 4 years	9.5	9.7	10.9
FROM 5 TO 19 YEARS, INCLUSIVE.			
5 to 9 years	11.7	12.1	12.9
10 to 14 years	10.7	11.2	11.4
15 to 19 years	9.9	10.5	10.0
Totals, both sexes	32.3	33.8	34.3

PERCENTAGE OF WOMEN OF THE POPULATION OF THE UNITED STATES FOR THE YEARS 1880, 1890 AND 1900.

1900	1890	1880
49.0	48.8	49.1

See Vol. II, p. III, Statistics of Population, Twelth U. S. Census for above figures.

JOHN WITHERSPOON,

the next witness called on behalf of the United States, of lawful age, first duty sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. Doctor, what is your profession?

A. I am a physician and surgeon.

Q. Are you a graduate of any institution of learning or medical student, and if so, what?

A. The Medical Department of the University of Pennsylvania in Philadelphia.

Q. Do you sustain any professional connection with any institution of learning, or teach medicine, and if so, what?

A. I am Professor of Practice of Medicine in Vanderbilt University at Nashville, Tennessee.

Q. How long have you been connected with that University?

A. Since 1895.

Q. And what has been your connection with that University?

A. The same chair.

Q. Have you had any connection with the State Medical Association for the State of Tennessee, and if so, what?

A. I am President of the Medical Association of the State, sir.

Q. Have you had any connection with the American Medical Association, if so what?

A. I have been a member of it eighteen years, and am on the Council for Medical Education for that Association.

Q. Have you had any connection with the Association of American Medical Colleges, and if so, what?

A. I have just retired as President of that Association.

Q. Now, are you a student of nervous diseases, and of the digestion, stomach trouble?

A. I studied all those diseases, I am a regular practitioner of medicine.

Q. How long have you been engaged in the actual practice of medicine, if you practiced it in connection with your teaching at Nashville?

A. About twenty-five years, since 1887, twenty-four years to be accurate.

Q. Where have you practiced medicine, that is at what places or points?

A. After leaving the hospital work, I first practiced for six or eight years at Columbia, Tennessee, and then moved to Nashville.

Q. Have you resided there since?

A. Ever since.

Q. I will get you to state whether or not you are acquainted with the substance caffeine.

A. Yes, I have used it medicinally.

Q. For what is it prescribed medicinally?

A. It is prescribed as a stimulant, primarily.

Q. A stimulant for what organs?

A. For the heart.
Q. Or organs?
A. For the heart.
Q. For the heart?
A. Yes, sir.
Q. Now, what effect, if any, does the administration of caffeine or the consumption of it, I should say, rather than the administration of it, the consumption of it in soft drinks such as Coca-Cola, assuming there is served from nine-tenths of a grain to one and a half or two grains of it per glass in six or eight ounces of carbonated water, what effect or more appropriately I should put it perhaps, how would that effect the nervous system?
A. I think one glass would have very little effect, more than a mild stimulant, I think it is the continued use that has the serious effect.
Q. How would that effect the nervous system?
A. It makes them very nervous, acts both on the brain and spinal cord by stimulating, over-stimulating the reflexes, stimulating directly the centers.
Q. Now, if at all, would consumption in that way affect digestion?
A. My experience with Coca-Cola has been that continued users of it are seriously impaired in digestion.
Q. Have you had experience of consumers of Coca-Cola, and if so, during what period of time?
A. I have noticed it some years, I should say five or six years. I do not know that my attention was called to it sooner than that.
Q. State whether or not you have treated any persons for the Coca-Cola habit or for the results of Coca-Cola using or consumption during that period, and if so, where you have treated them and how you have treated them, and how you found it affected them?
A. I found, sir, that young people especially soon formed the habit of taking this drink and after they get in the habit and commence taking several drinks a day—eight, ten, fifteen or twenty, some of them become extremely nervous, some of them do; one glass requires another and they become weak and the heart becomes rapid and irregular, and they really look like morphine habitues so far as their efforts to try to control it are concerned.
Q. Probably how many patients have you treated that have been afflicted with this Coca-Cola habit or trouble during the last four or five years?
A. I could not say. I have had three cases in the hospital that I have treated and tried to break it off. I have

had a number of cases, however; I could not say how many.

Q. Could you approximate the number, Doctor?

A. It would be a guess—thirty or forty, I didn't look up the record.

Q. What character of treatment did they require?

A. Very largely one to sustain the heart, and try to break the habit by keeping them away from it. I found that I had to lessen it gradually.

Q. Those persons that you placed in the hospital, state what the character of treatment—first, state whether or not you kept them under your supervision and that of a nurse in the hospital.

A. Yes, with a nurse.

Q. Did you see them frequently?

A. Yes, sir.

Q. What would be the course of treatment there in order to break them?

A. I found that it was necessary in one of these cases to let him have the Coca-Cola each day, just lessen it gradually just as I do with other drug habits. The other two cases, it is fair to state, had other troubles but they also had the Coca-Cola habit, which I found more difficult to handle than the other trouble.

Q. Now, in the case of these patients that were not actually sent to the hospital, what was the general course of treatment of them?

A. Well, each one of them—I worked on their feelings and did that by trying to show them or to force them to leave it alone, making them see that they were getting more and more in the throes of trouble all the time. One of these young men had previously lost his position in a store because he left and missed waiting on a customer to go out and get it and his employer dismissed him.

Q. As they would gradually give up this habit or you would break it, I will get you to state whether or not their health improved.

A. Yes, sir, they improved when they broke it up.

Q. What is the effect on the appetite? That is, the consumption of Coca-Cola, how does it affect the normal appetite?

A. Those who take large quantities of it lose their appetite usually. Of course, there are exceptions to that rule.

Q. State whether or not the consumption of it has a tendency to stomach disorder or to affect the stomach in any way, and if so, what.

A. I have thought that was so. I have seen a number

of cases in which nutrition was impaired, and they would have trouble in the stomach with more or less gastric trouble; that is, some irritation of the stomach that seemed to me to be produced by it, and they got better when I could stop the use of the drug or drink.

Q. What is the relative power of resistance in a person who is accustomed to taking Coco-Cola and in a person who is in his normal condition before he takes it or after he gives it up?

A. I think his resistance is very much impaired.

Q. During which period?

A. While taking it. I am speaking of the takers of large quanities, you understand.

Q. What do you say on the subject of one glass or one dose requiring another?

A. The action of it apparently is to boost them up and make them feel better and then the reaction is one of depression and they get very nervous and seemingly cannot do without it very well, sir. I have, in studying out their condition, I have found that it is like any other drug, that there is a demand for it.

Q. Do you or not regard it as a habit-forming drug?

A. I do, sir. I beg your pardon. I don't know whether you call it a drug or not. I think Coca-Cola, whatever it is—I never analyzed it—makes a habit.

Q. Do you or not regard caffeine as a habit-forming drug?

A. How is that?

Q. Do you or not regard caffeine as a habit-forming drug?

A. I do not know that I have ever known persons to become addicted to the use of caffeine, plain, Mr. Miller, but I have known them to become addicted to the Coca-Cola habit.

Q. Take these instances of where you have treated for the Coca-Cola habit; where were these persons served, and how did they receive this Coca-Cola which they used?

A. At the soda fountains and they bought it in bottles and took it to their rooms.

Q. Is that in the fountains in the city of Nashville, also?

A. Yes, sir.

Q. State whether or not it has been openly dispensed there in Nashville for several years at fountains and in bottles?

A. Yes, sir.

Q. Take persons of the character that you have described as being addicted to its use, and assume that

they were to get married and procreate. State, in your opinion, what would be the effect on the progeny, or the off-spring.

A. Of course, that question of heredity is very hard to decide, but I think that any man whose nervous system is rendered unstable or woman whose nervous system is rendered unstable, is liable to transmit that instability to her off-spring.

Q. Did you hear the testimony of Doctor Kebler yesterday as to the reported cases of caffeine poison, wherein he described the heart as hard, so that it could hardly be cut with a knife, in some instances?

A. Yes, sir; I heard that statement.

Q. Did you hear his statement as to the physical condition of those subjects, one, I think, being afflicted with pneumonia, I believe, and one or more, I think, with diptheria, and one or more with typhoid fever?

A. Yes, I heard the statements of Dr. Kebler.

Q. I will get you to state whether or not the heart, as described in the reported cases, the contracted heart, if the patient had died from the disease, independent of the caffeine poisoning, would have been in the condition that the reported cases described it.

A. Yes, sir. I must qualify that, however, by stating that I never held a post mortem on any death from caffeine, but that is the regular way in which they died, by contraction of the heart.

Q. If the patient had died of the disease, without the caffeine heart—that is, without the administration of caffeine—what would have been the condition of the heart in typhoid fever or diptheria?

A. Those cases of infected disease usually have a degeneration of the heart muscles, and it very likely would have been dialated—a flabby heart.

Q. By "flabby heart" you mean what kind of heart, Doctor?

A. Well, a heart that has lost some of its muscular integrity.

Q. Would it or not have been in that contracted condition that was described by the author there, or the person reporting the cases?

A. Would it have been?

Q. Yes.

A. In these diseases?

Q. Yes.

A. No, sir.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, how many cases are there you say you have treated for this what you call the Coca-Cola habit?

A. I do not know, sir, as I said. I could not tell you. I have seen, as I remember, three cases in which I had a great deal of trouble with them. I have treated a good many men coming to the office, more or less affected.

Q. How many cases did you say you had in the hospital?

A. I have treated three in the hospital.

Q. What were the names of those people?

A. I decline to give the names of the patients, sir.

Mr. Sizer: May it please your Honor, we want to get the names of those people to investigate those cases.

The Court: You answer that question.

The Witness: Will I have to answer and give him the names? Can I not give them to him privately, Judge?

The Court: Yes.

Mr. Sizer: That is all right.

The Witness: I prefer to do that.

The Court: You may do that.

BY MR. SIZER:

Q. What were the dates on which you treated those cases?

A. Well, the last case ——

Q. Commence with the first one of those.

A. Well, the first case was some years ago. That case must have been five or six years ago, and it was, as I said, that that case had other troubles.

Q. What other trouble?

A. Well, he was addicted to alcoholism also.

Q. Addicted to alcoholism?

A. Yes. I broke the alcholism before I did the cocai—Coca-Cola.

Q. What was the age of that man?

A. He must have been—well, I could not say—forty-five, maybe.

Q. Forty-five years old, and did he come to the hospital for treatment?

A. Yes, he came ——

Q. How long was he in the hospital?

A. Well, he was there possibly a month.

Q. Did he drink Coca-Cola while he was in the hospital?

A. We gave him some; yes, sir.

Q. How much did you give him?

A. Well, I do not recall now, sir. It was just enough to stimulate him.

Q. About how much per day would you give him?

A. I could not say, sir; maybe four or five glasses. I could not tell that.

Q. You gave him the carbonated Coca-Cola, did you?

A. Gave it to him in the bottle.

Q. In the bottle?

A. Yes.

Q. A bottle at a time?

A. Yes, sir.

Q. And you say you do not know how many bottles you gave him per day?

A. No, I could not tell you now, sir.

Q. Did you give him four or five?

A. Possibly so.

Q. You do not know how many he had been drinking prior to that time except from what he would tell you?

A. I do not know, sir; I could not tell you except just what he said.

Q. Do you know how much alchol he had been in the habit of drinking?

A. He had been drinking considerable alchol, sir.

Q. Did you give him alcohol also in the hospital?

A. After the first two or three days we were able to check that.

Q. You did not give him alcohol after the first two or three days?

A. No, sir. Well, I would say positively none.

Q. But you did continue to give him Coca-Cola for how long?

A. I guess a couple or three weeks.

Q. Then did he recover?

A. Well, yes; apparently he recovered. He was well, I think, about a year. He died of pneumonia about a year afterwards.

Q. Did you give him any tea or coffee while he was in the hospital?

A. I could not say; sir.

Q. You did not keep any track of the diet that he took there?

A. Oh, yes, sir.

Q. You don't know whether he had tea or coffee habitually?

A. Not five years from then, sir. I could not tell you that.

Q. Do you know whether or not he had been in the habit of drinking tea or coffee before he came there?

A. I could not say that.

Q. You could not say about that?

A. No, sir.

Q. Now, the next case: What was the date of the next case that you treated?

A. I guess it must have been three years ago, that next case.

Q. Was that a man or woman?

A. That was a man.

Q. Of what age?

A. I think he was about twenty-two or three.

Q. What was the matter with him when he came to the hospital?

A. He had gastric trouble. He had very bad catarrhal stomach trouble.

Q. Did you give him Coca-Cola while he was there?

A. He took some Coca-Cola; yes, sir. I don't know how much. But he insisted that he must have some at first, and I gave him some.

Q. You don't know how much you gave him per day?

A. No, sir, I cannot recall now. I think we have the record, however.

Q. As much as four or five bottles a day, do you think?

A. Possibly so. I could not answer that, sir.

Q. Doctor, what would be the result on the stomach of giving four or five bottles per day of a substance containing in each bottle about one ounce of a syrup of which 52 per cent. was sugar?

A. I could not catch that, sir. What was it?

(Thereupon, at the request of the witness, the stenographer repeated the pending question.)

A. I think it would be injurious to the stomach, sir.

Q. If a man's stomach was in a disordered condition and he took four or five bottles per day of a drink of that kind, the sugar would be likely to ferment in his stomach, would it not?

A. It would.

Q. And produce injurious effects in his stomach?

A. Yes, sir.

Q. Suppose the man took eight or ten or fifteen or twenty bottles or glasses a day of that kind of a mixture, containing that proportion of sugar, what effect would it have on his stomach? That is, the sugar in it?

A. Well, I think it would be injurious to the extent it would create fermentation, sir.

Q. That would be true regardless of what other substances might be in the drink?

A. I think sweets are injurious to the stomach taken constantly, sir.

Q. You do not know, of course, except from what that man told you, this second patient, how much Coca-Cola

he had been drinking a day?

A. No, sir; I have no idea.

Q. Had he been drinking alcohol?

Q. No, I don't think he ever drank alcohol.

Q. He drank no alcohol in the hospital?

A. No, sir.

Q. Of course you don't know whether he drank alcohol before he came there or not?

A. No, sir.

Q. Did he show any symptoms of having taken morphine, opium or cocaine?

A. No, sir.

Q. You said some of these patients did have symptoms such as would attend the taking of cocaine and ——

A. (*Interrupting*) What I meant by that is, sir, these boys who drink it and demand or desire it, are patients that are almost like those that have been taking that; in other words, always get nervous.

Q. This particular man, did he have any symptoms of a person who took ——

A. (*Interrupting*) No, sir he only had just general nervousness.

Q. And a disordered stomach?

A. Yes, sir.

Q. The other man, the third patient that you had at the hospital, what was the date of that case?

A. That is a case that is really on hand now. He is not in the hospital now but was there some months ago, something like that. He worked in one of our dry goods stores and got very nervous every time he would get out of the drug. In other words, in the midst of his treatment—in the very midst of waiting on customers, he would get nervous and go out to get a drink of this stuff, and ——

Q. (*Interrupting*) Do you know that, Doctor, or are you testifying from what he told you?

A. From what he told me.

Q. I am asking you only about your personal knowledge, and want you to confine your answers to that. When did this patient come to the hospital?

A. I saw him some—well, I don't know. It may be a month or so ago. I did not keep any record, sir.

Q. Did you give him Coca-Cola while he was there?

A. He is still taking Coca-Cola.

Q. How much did you give him in the hospital?

A. He must have taken ten or twelve glasses.

Q. Was his stomach disordered?

A. Yes, his stomach was very much disordered when he was there.

Q. And if it had not been disordered when he was there, when you gave him ten or twelve glasses of this sweet drink per day, it would have gotten his stomach out of order, would it not?

A. How is that, sir?

(Thereupon, at the request of counsel, the stenographer repeated the pending question.)

A. I could not answer that; I presume it would have disturbed his stomach if it had not been, but it was already disturbed, as I told you.

Q. Yes, and it would be somewhat more injurious to give him ten or twelve glasses per day of a substance containing that proportion of sugar, as indicated in the previous question?

A. I think sugar disturbs digestion; yes, sir.

Q. And the giving of that kind of drink in that quantity to a man whose stomach was out of order would be calculated to still further disturb it?

A. Yes, sir.

Q. Are those the only cases now that you treated in the hospital?

A. Yes, sir; the only cases I have ever had come under my care.

Q. The only cases you have had come under your care?

A. In the hospital.

Q. Now, have you had any cases to come under your care outside of the hospital?

A. Yes, sir; I have had several who complained to me. I did not see them drink it but they complained to me they were drinking it and could not do without it.

Q. This last case in the hospital, you don't know what other substances that man may have taken or drunk before he came there?

A. I could not say, sir, that he did not use or drink any other things. I did not see any manifestations of them.

Q. You did not know what these other people who came under your observation ate or drank except what they told you?

A. Except when they were under my care.

Q. How many of those were under your care and how many of those were there whose habits with respect to drinking Coca-Cola came under your personal observation, aside from these three?

A. I have seen some of them take drinks in the drug stores, of Coca-Cola. That is all.

Q. Well, take a drink occasionally?

A. Yes, sir; I did not see them except occasionally.

Q. You do not undertake to say how many drinks they may have taken a day?

A. No, sir.

Mr. Sizer: May it please your Honor, we desire to have you exclude the testimony of this witness given on his examination in chief as to the amount of Coca-Cola these different people drank, because of his statement that he knows nothing about it except what they would tell him.

The Court: I think the statement made by any particular patient is inadmissible, but I think the general result of the physician's knowledge acquired through the statements of the patients from time to time is admissible; but any particular statement given by any particular patient I think is inadmissible.

Mr. Sizer: That is what I am objecting to, the statements of these three persons as to whom he has testified specifically, and I move to exclude what he stated in his examination in chief as to the quantity of Coca-Cola those three patients took before they came to the hospital.

Mr. Miller: I submit that he made no statement on that subject until counsel called for it. I did not ask him that on examination in chief, and if it is insisted that I did, I appeal to the stenographic notes.

Mr. Sizer: I did not ask him how much he had been drinking, but he did state on examination in chief that these patients had been accustomed to taking eight or ten or fifteen or twenty glasses a day.

Mr. Miller: I submit that was not in the examination in chief.

Mr. Sizer: Do you agree that that is a fact, that he has not stated they took from eight to ten or fifteen to twenty glasses a day?

Mr. Miller: I do not agree that you did not call it out, but I say that if you called it out I object to your excluding it now.

The Court: Gentlemen of the jury, I instruct you that any statement on direct examination, brought forth by a question of Mr. Miller, if he made any such statement as to the amount these three people took before they came to the hospital, from what they told him, is excluded. Any statement brought about by Mr. Sizer on his examination is not excluded.

BY MR. SIZER:

Q. Now you say Doctor, that all drugs are habit forming?

A. No, sir, I did not say that.

Q. You didn't mean to say that all drugs were habit forming?

A. No, sir.

Q. What drugs are habit forming, in your opinion?

A. I think morphia, alcohol, cocaine, and those drugs and cannibis indica.

Q. Those are all now?

A. Yes, sir, as I stated to you, I thought this thing, this Coca-Cola was.

Q. Well now, you know that the drug in Coca-Cola is caffeine, don't you?

A. No, sir, not of my own knowledge.

Q. Do you class caffeine, Doctor, as a habit forming drug?

A. I have never thought so until I noticed it in this, sir.

Q. I want to read you now ——

A. (*Interrupting*) That is pure caffeine.

Q. I will read you a list, and will get you to state if this does not include all substances classified and known and called habit forming drugs: Alcohol, morphine, opium, cocaine, heroin, alpha or beta, encaine, chloroform, cannibis indica, chloral hydrate or acetanelid and its derivatives or preparation of any such substances contained; is that a complete list of all habit forming drugs?

A. As far as I know, I should say they were.

Q. Doctor, I want to ask you this question: Is it true that the contraction of the heart found after death might have resulted from a cerebral hemorrhage of the posterior or lower part of the brain?

A. Yes, it could occur, hemorrhage at the base would cause contraction.

Q. Do you know of any drug, Doctor, or did you ever hear or read of in any medical authority of a drug, the effect of which would be to contract the heart so that you could not cut it with a knife?

A. I don't know of any drug of that sort.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. Doctor Witherspoon, in these cases that were sent to the hospital, state whether or not any concoction or mixture was administered to them that contained any drug so far as you know, barring what you proved them, except Coca-Cola.

A. No, sir, not that I know of.

Q. Did you prescribe any other drugs?

A. Did I prescribe any other drugs?

Q. Yes.
A. While they were there?
Q. Yes, I men except to improve their condition?
A. No, sir.
Q. How was this Coca-Cola taken away from them?
A. Gradually.
Q. State whether or not that is the characteristic way in which opium and other habits are treated, and relieved.
A. It is, I try to take it off gradually; some people take it off suddenly.
A. I will get you to state whether or not the patients sent to the hospital, and also those that you treated outside of the hospital, you observed any general condition as to nervous symptoms, and if so, what?
A. They were very nervous and sleepless, disturbed a great deal.
Q. State whether or not the same general nervous condition prevailed?
A. Yes, sir, pretty much the same.
Q. Did you see any other manifestations or drug habit in any of these patients except the consumption of Coca-Cola, or the caffeine that was in it?
A. No sir; I did not.
Mr. Sizer: I object to that.
The Court: The objection is overruled.
Mr. Sizer: We take an exception.

BY MR. MILLER:

Q. Doctor, is there or not what is known as the alcohol habit?
A. Yes, sir.
Q. Is alcohol specified among the names in the list, or is it one among the number of drugs or any one of the derivatives that Mr. Sizer read you?
Mr. Sizer: I read it in the list.
Mr. Miller: Well, that is what I want to find out.

BY MR. MILLER:

Q. Is it recognized as a habit forming ingredient or drug?
A. Yes, sir.
Q. Now, assuming that caffeine was contained in this Coca-Cola mixture, and that it was composed of burnt sugar and caramel and some flavoring extracts, not containg any of the drugs or constituents that were read to you by adverse counsel, or any of the other derivatives, I will ask you if anything else in that mixture could have,

in your opinion, caused the acquired habit of taste for it except caffeine?

A. It would be the only one that I think of. I want to say that I do not know or do not regard caffeine as a drug forming habit.

Q. Is the taking of sugar or sweets, as contained in soft drinks, habit forming? And classed as a habit forming substances in any sense?

A. I don't regard it, although some people have a pretty sweet tooth.

Q. State whether or not the use of tobacco is habit forming.

A. Yes, sir.

Q. Are you or not prepared to say whether or not persons become accustomed to and form the habit of taking headache powder containing caffeine and tea.

A. Yes, sir, they take headache powders. Those things are very indefinite as to what is in them, I don't know half the time what is in them.

RE-CROSS EXAMINATION.

BY MR. SIZER:

Q. The headache powders you refer to, do as a rule contain acetanilide?

A. Yes, sir.

Q. Or some of the coal-tar derivatives?

A. Yes, sir.

Q. This word "habit" is somewhat of an indefinite term. isn't it Doctor?

A. I don't know.

Q. For instance, people very often get inthe habit of going to soda fountains and taking one or two or three glasses of chocolate soda a day?

A. Well, possibly.

Q. And they keep that up from day to day, that is true?

A. I don't know.

The Court: I don't think that is a matter for expert testimony.

Mr. Sizer: I want to get at what he means by the word "habit."

The Court: Well, you can just ask him that.

BY MR. SIZER:

Q. I will ask you, Doctor, you spoke of these people suffering from nervousness, you don't know how long they had been troubled with nervousness, do you?

A. Some of them I do not.

Q. Well, apparently they had suffered from it for some time?

A. That is very hard to answer, sir.

Q. Could you tell whether it was a recent case, or one of long standing?

A. I could not tell that.

Q. You have, Doctor, a great many cases of nervousness, and insomnia, and cases of that kind in which patients never claimed to have never taken Coca-Cola at all, haven't you?

A. Oh, yes.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Do you say that as to some of these persons you do not know how long they had been affected with nervousness. State as to the others if you have any personal knowledge that some of them had no manifestations of nervousness prior to a certain time before you began to treat them.

A. I don't think I could answer that, I don't know.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. You stated that you prescribed some other drugs to these patients in the hospital. What was that you prescribed to them?

A. It was strychnine, and things, trying to sustain them.

Q. You prescribed strychnine to all three of them?

A. I could not recall.

Q. You recall you didn't prescribe it to some of them?

A. Yes, sir; but whether to all, I do not know.

Q. Whether to all you do not remember?

A. No, sir; I do not remember.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Did they crave Coca-Cola, Doctor, or seem to want it from time to time, or call for it, those that were in the hospital?

A. Yes, sir; yes, sir.

Mr. Sizer: We want to get that list.

The Witness: All right sir.

The Court: That, by agreement, will not be published in the testimony.

(Witness excused.)

T. J. SEARCY,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Dr. Searcy, what is your profession?

A. I am a physician.

Q. From what institutions are you a graduate as a physician?

A. I am a physician and a graduate of the Medical Department of the City of New York, the University, of the City of New York.

Q. When sir?

A. In 1867.

Q. State whether or not you have had any experience in the active or general practice of medicine since that time, and if so, for how long.

Q. Why did you retire from active practice in 1892?

Q. Well, where did you reside during that period?

A. I resided in Tuscaloosa, Alabama.

Q. Where do you reside now?

A. I live there, or near there, in the suburbs.

Q. Why did you retire fro mactive practice in 1892?

A. I was appointed Superintendent of the Alabama Insane Hospital.

Q. Superintendent of what?

A. The Alabama Insane Hospital.

Q. The Alabama Insane Hospital?

A. Yes, sir.

Q. State whether or not since that time the State of Alabama has built a second hospital for the insane.

A. In 1901 they built another hospital for the colored patients.

Gen. Cox: A little louder, Doctor.

BY MR. MILLER:

Q. Are you not now and have you been since the second hospital was built, Superintendent of both hospitals?

A. Yes, sir.

Q. I will get you to state whether you are a member of the American Medical Association.

A. Yes, sir.

Q. What connection, if any, have you sustained to the State Medial Association of Alabama if there be one?

A. There is a State Medical Association, and I have been all the time, or almost all the time, from a few years from the beginning, I have been a member, and at one time president, and have held other offices, Auditor, and things of that kind.

Q. State whether or not you are on any examining board.

The Court: In the preliminary questions, Mr. Miller, I think you may lead the witness.

BY MR. MILLER:

Q. I will get you to state what your connection was

with the State Examining Board.

A. I was on the state Examining Board.

Q. You are a member of the American Academy of Medicine?

A. Yes, sir.

Q. Are you a member of the Medical Physiological Association?

A. Of the Medical-Physiological Association.

Q. Of America?

A. Yes, sir.

Q. Medical-Psycological Association?

A. Yes, sir; composed of hospital superintendents.

Q. State whether or not the class of persons who come to your hospital for treatment, any portion of them, are of a nervous temperament.

A. A very large proportion have more or less impaired nervous systems, and that is the reason they are sent to the hospital.

Q. How many people are in the hospital, Doctor?

A. There are twenty-one hundred and fifty in the two hospitals in round numbers, close to that number today, I don't remember exactly.

Q. During the time of your connection with these hospitals, state whether or not it has been a part of your duty and if you have spent much time in observing the patients therein, and inquiring into the reason and causes of their demented condition.

A. I, of course, inspect one part or the other of either of the hospitals where I am, every day, I am inspecting them, it is impossible to be there, it is impossible to get around to the hospital in Tuscaloosa every day, so I take part of it at a time, and inspect every day, one time I observe the men, one day, the next day possibly the women, and go through every day, through the wards.

Q. Do you or not inquire into their history?

A. Yes, sir, that is a part of my business, to try to find out what occasions their condition.

Q. State whether or not the inmates of the Insane Asylum under your care, are on the increase or decrease.

A. Well, I beg your pardon.

Q. Please state whether or not the inmates of those institutions are on the increase or decrease.

A. They are rapidly on the increase.

Q. State if you had occasion to investigate the growth and population of the State of Alabama as compared with the increase in these asylums.

A. During the census reports of the last census just closed in 1910, the state population increased about six-

teen per cent., and the admissions into the insane asylums of the State increased about forty-five per cent. within that same time.

you to ascertain as to the drug habit diseases that come

Q. State whether or not any inquiry has been made by in these insane hospitals. State whether or not you know about that.

A. Why, the habitues who have reached such a degree of nervous impairment so as to bring them within the cognizance of the law so as to have them sent to the hospitals, about five per cent. of them who come are called drug and drink habitues.

Q. Is that class of habitues on the increase or decrease.

A. Well, that is my opinion, I think it is on an increase?

Q. Now, as to this——

Mr. Sizer: I don't think that his opinion on a question of fact of that kind, is admissible.

Mr. Miller: That is the only way to get it.

The Court: Unless he is basing it on information from facts of his own observation. He can state what he knows from facts of his own observation.

Mr. Sizer: He has answered that it is a matter of opinion.

The Court: What do you make that up from, that opinion.

The Witness: My opinion is based on the fact that I think they are coming in in greater numbers.

The Court: Are you uncertain about it?

The Witness: No, sir, I am quite certain about it that they are increasing.

Mr. Sizer: I don't think that is competent, it is merely his opinion as to the question of facts.

The Court: Well, I think it is a summation of his observation. Proceed Mr. Miller.

BY MR. MILLER:

Q. Doctor, in the treatment of these habitues, drug habitues, that come into the hospital at Tuskaloosa——I will get you to state first how you go about your treatment, whether or not the drug is withdrawn from the habitues gradually.

A. Our rule is to withdraw it at once unless clinical charts or reports show some reason for giving some.

Q. Is there or not a craving for the drug by the habitue or subject, if withdrawn?

A. All drug habitues have impaired nervous systems

which renders them so that they feel bad unless they are drugged again, and when you withdraw it, of course, they feel bad, and if they know they can get more they feel more comfortable.

Q. State whether or not you have observed that these habitues as this drug is withdrawn will partake freely of Coca-Cola, or if they will go after Coca-Cola or go to stands nearby and get it. Tell the result of your observations in that respect.

A. I cannot say of my own observation—I cannot say that my own observation extends very far. I don't have direct care or prescribing for or treatment of the patient. There are five other physicians in the hospital at Tuskaloosa and three at Mount Vernon; I have general supervision and my observation——

Mr. Sizer: Now, I object to that. I want him to tell just what he has seen.

The Court: Do not tell what you get by reports from other doctors.

The Witness: I can have no personal observation in the matter.

BY MR. MILLER:

Q. Are there or not any soft drinks or Coca-Cola stands nearby?

A. There are some small grocers that sell it close by.

Q. You say you have no personal observation as to those persons going there to these drug stores?.

A. No, sir.

Mr. Sizer: I object to his cross-examining the witness. He has already stated ——

BY MR. MILLER:

Q. State whether or not caffeine in your opinion or from your observation is a habit-forming drug or one that conduces habit-forming, and also what its effect on the nervous system is.

A. The use of most of such drugs is to impair the nervous system so as to make a person with repeated use feel bad, and he knows he can take more and feel better. He must be relieved by it. In that way it is what I consider to be a habit—an impaired nervous system from chemical action of these drugs upon the nerves and brain. He gets the habit. The habit consists in the fact that the man knows he can take more to relieve him.

Q. Is or not caffeine in your opinion a habit-forming drug?

A. Yes, sir; in that sense I think it is.

Q. What is its effect on the nervous system, how does it affect it?

A. Just as I say, it chemically acts upon the nerves and sensation and consciousness, and renders a man so he feels or is able to feel more comfortable—when he does not have it he feels worse, and he knows he can take some more and relieve it.

Q. I will get you to state whether or not Coca-Cola is as manufactured by or as labeled and sent out by the company in Atlanta and its branches, is sold freely and dispensed freely throughout the state of Alabama.

The Court: I take it there is no question about that.

Mr. Sizer: No.

Mr. Miller: I didn't know that was conceded. If they concede it is in the state of Alabama where this man gets these patients from, I withdraw the question.

Mr. Sizer: Well.

Mr. Miller: You may cross-examine.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, suppose a man gets hungry, he wants something to eat?

A. Yes, sir.

Q. And if he eats something he feels better?

A. Yes, sir.

Q. Therefore food is a habit-forming substance?

A. No, not in the sense I see it, for it is called for from all over his body, every nerve cell has to be supplied with food.

Q. And when he takes it he relieves that sense of discomfort that comes from the demand for the supply necessary to every nerve cell in the body?

A. Yes, sir.

Q. It is habit-forming to the extent that a man gets in the habit of taking it to relieve hunger?

A. He takes it.

Q. He takes it?

A. Yes, sir.

Q. And he relieves that hunger?

A. Yes, sir.

Q. And a man may get in the habit of taking a particular kind of food, may he not?

A. Yes, sir.

Q. A man may form the habit of eating eggs for breakfast, for instance, and he may not feel right unless he does those things, that is a habit, is it?

A. It is the constant performance of his—in that sense it is a habit, but not a habit in the way I defined just a moment ago.

Q. A man gets in the habit of taking a cup of coffee for breakfast?

A. Yes, sir.

Q. That becomes a habit in the same sense, does it not?

A. Not in the same sense in my understanding.

Q. Let me ask you this: Suppose a man gets accustomed to the use of coffee, say he takes one, two or three cups a day, is it as a general rule that when he gets accustomed to a certain quantity per day that he will go and take that same quantity day after day and year after year without any desire to increase the quantity except on special occasions?

A. It depends on the man.

Q. Well, in the majority of cases, is that the rule?

A. Well, each man has peculiarities of his own. He has his own nervous system and he is more or less affected by such agents.

Q. Yes.

A. If he gets into the habit, that is, if he has acquired the use of coffee, if he don't get the coffee he is impaired so he feels discomfort when he don't get it, and he takes it.

Q. Well, Doctor, what I am getting at is this: Is it true that a man who gets accustomed to the use of coffee or of tea or of chocolate or of any of these caffeine containing substances, the rule is he wants a quantity that he is accustomed to taking, is that not true?

A. Yes, sir; but he continually increases it, the quantity from day to day.

Q. You say he increases it?

A. I think the rule is that he wants to increase it if he keeps it up long, in order to relieve his discomfort.

Q. Is that your personal experience?

A. No, not my own personal experience, but from observation.

Q. Do you use coffee?

A. Very little, indeed.

Q. About how much a day?

A. I have not taken any in six months, hardly.

Q. You don't use it except rarely.

A. No, sir.

Q. Do you take tea?

A. Less than I do of coffee.

Q. Do you drink chocolate?

A. No, sir.

Q. Or cocoa?

A. No, sir,—I say I don't drink it, I occasionally might when it is brought to my table and I may take some then.

Q. And so far as your personal exxperience goes you don't know very much about it?

A. No, sir, not in my own experience.

Q. Do you know whether coffee and tea and chocolate are served to the inmates of your hospitals?

A. Yes, sir. I try to dilute them as much as I can.

Q. How much do you give those patients a day?

A. They have a cup of ordinary coffee and in order to dilute it we mix it with chicory which gives it a different color, and in order to get rid of the toxic effect of caffeine we have adopted that course.

Q. Well, you give them coffee, do you?

A. Yes, mixed with something in order not to keep up the coffee habit.

Q. How much do you give them a day?

A. About thirty pounds a day.

Q. But how many pounds to the man or how many ounces to each individual?

A. I could not tell you, but it would be very little; to some more and to some less.

Q. These patients are people—a great many of them—crazy people, suffering with nervous diseases?

A. Yes, sir.

Q. And you give it to all of them indiscriminately?

A. To those who want it. There is such a demand for it, it is such a popular water we give it to them ——

Q. (*Interrupting*) Have you had any experience, observation or otherwise with respect to the use of chocolate or cocoa?

A. In what way do you mean, upon myself?

Q. Yes.

A Chocolate or cocoa?

Q. Yes.

A. But very little.

Mr. Miller: I object to that; it is foreign to this inquiry.

The Court: Until it is shown they contain caffeine it is ruled out.

Mr. Sizer: Dr. Kebler admitted there was a trace in it.

The Court: Not enough to make it material.

BY MR. SIZER:

Q. Do you know, Doctor, how much caffeine is contained in chocolate?

A. No, sir.

Q. Well, you know that it contains caffeine?
A. I don't know it; I have heard it did.
Q. You have heard it contained caffeine in the same way coffee and tea did?
A. I have heard it contained much less.
Q. However, you do not know what the proportion is?
A. No, sir.
Q. How about the cocoa nibs, do you know how much they contain?
A. No, sir.
Q. Or the cocoa shells or nibs?
A. I don't know what is meant by that.
(Witness excused.)

DR. L. F. KEBLER,
resumed the stand for further examination.

CROSS-EXAMINATION continued

Mr. Miller: As to the previous examination, I move to exclude the question and answer as to the substances which have been referred to because they are not a matter of controversy here at all, whether text writers included those or did not include them in the matter of toxics, I submit is immaterial.

The Court: I did not catch the point of the exception.

Mr. Miller: Adverse counsel has asked as to certain substances such as certain kinds of acids extracted from grapes and other substances, and has asked whether or not certain text writers lay down these particular substances—etc., that ——

Mr. Sizer: (*Interrupting*) We didn't ask him that. that.

Mr. Miller: You asked if these particular substances were reported as poisons.

Mr. Sizer: I did not even ask him that; I asked him if they treated of those particular substances.

Mr. Miller: If you limit it to that I submit that it is immaterial whether they treated of it or not. They are not shown to contain caffeine.

The Court: I think you are relying on the inference that it is caffeine from the fact that it is treated in the works on toxicology ——

Mr. Miller: We did not call that out. We did not go into that—and your Honor held we could not. As I understood your Honor's ruling it was that a witness on cross-examination might be challenged as to his opinion based on learning and observation by production of text writers, and they produced them, and now they propose to impeach them.

Mr. Sizer: No, we are not. We want to show their connection with other substances these writers treat of——

The Court: You were simply asking him on cross-examination, to test his statement that caffeine was a poison, to name text writers—you asked that. I do not think that it warrants you to go further as to what other things the text book writers also included as poison.

Mr. Miller: I object to it.

The Court: The objection is sustained.

Mr. Miller: I move to exclude the testimony.

The Court: It is excluded.

Mr. Sizer: It is competent for us to show the connection in which these writers speak of caffeine.

The Court: You are to bring out, yourself, these text writers mention caffeine.

Mr. Sizer: We asked him on what ground he based the statement caffeine was a toxic substance, and I submit in further cross-examination I have a right to go into details of these writings, as to what these writers say about it, and in what connection they treat.

Mr. Miller: Counsel asked what writers named this as a toxic.

The Court: I adhere to the ruling.

Mr. Sizer: We ask further to have these books. I submit that the best evidence of what the books contain are the books themselves. I submit I am entitled to have the authorities on which the witness bases his statement.

Mr. Miller: We stated that we would give the cases such as we have.

Mr. Sizer: Unless your Honor will give us leave on examination of our witnesses to offer these same books and to rebut the inference that Doctor Kebler's testimony might leave——

The Court: (Interrupting) You asked him to name the books and he has named them. If they are willing to hand you those books I think that is sufficient. I cannot go on the inference they are in the possession of the witness.

Mr. Miller: They are in Mr. McConville's room and he will get them.

Mr. Sizer: The introduction of the books will not do any good unless we can examine the witnesses about what the books state and we do not care for the introduction of them to read them for our own information, and our object to get them into this court is for further cross-examination of the witness.

The Court: If you found anything in these books contrary to the opinion expressed by this witness that caffeine

is a poison, you may cross-examine him about that, and ask him if these books contain these contradictory statements, but going to the question of what other things are included or not included is beyond the limit of the cross-examination as I view it, and I adhere to my ruling.

Mr. Miller: The books were at the hotel all day yesterday for the use of the council on the other side, and likewise for the use of their experts. We will be pleased to submit them, but we are under obligations to return them. I will say now they will be there after the adjourning hour this afternoon.

BY MR. SIZER:

Q. I believe you stated yesterday. Doctor Kebler, that there was a trace of caffeine in chocolate and coca.

A. Yes.

Q. Is it not a fact that there is 28-100th of 1 per cent. caffeine in chocolate?

A. I have—that might be true in some specimens, yes.

Q. You are familiar with the work by Leach, I suppose, on food inspection and analysis, are you not?

A. I am very well familiar with it; yes, sir.

Q. That is recognized as a good authority, is it not?

A. A good publication; yes, sir.

Q. Was not Leach an employe—was not Mr. Leach the chief of the Denver Food and Drug Inspection Laborotory, Bureau of Chemistry, United States Department of Agriculture?

A. He was.

Q. Now, I will ask you——

A. (Interrupting) Let me answer. I know all about that and can answer all the questions.

Q. What does Mr. Leach say about the percentage of caffeine in chocolate?

A. It varies from nothing up to, say, a quarter to one-half per cent., depending entirely on what you mean by chocolate, whether you mean a cup of chocolate or the solid product, or what not.

Q. I am talking about the chocolate that is used in making the beverage, and used in making the soda fountain syrup.

A. I did not understand what you meant.

Q. Does not that contain 28-100ths of 1 per cent. of caffeine?

A. It varies, as I have stated, from nothing up to——

Q. (Interrupting) Then that is not a very definite substance, according to your idea?

A. I do not know what you mean by a definite substance.

Q. Well, if the chocolate contains amounts of caffeine varying from nothing up to 28-100ths of 1 per cent., it is not a definite substance?

A. No plant drugs are absolutely definite. They all vary in the percentage content of the various constituents.

Q. The roasted coca nibs—what are roasted coca nibs?

A. They are simply coca beans roasted.

Q. Containing the chocolate, the same substance that is contained in the commercial chocolate?

A. Yes.

Q. They contain 73-100ths of 1 per cent. of caffeine, do they not?

A. I believe that report is made, yes. I do not know from my own knowledge.

Q. This chocolate and coca is used extensively in the manufacture of candy?

A. Yes.

Q. That is consumed by men, women and children of all ages, sizes, conditions and color?

A. Yes.

Q. It is used also in the manufacture of soda fountain beverages?

A. Yes.

Q. And the manufacture of the hot drinks—chocolate and cocoa?

A. The two drinks, you mean, together?

Q. Chocolate, sometimes called chocolate and sometimes called cocoa, is it not?

A. Yes.

Q. It is substantially the same thing?

A. No, not substantially the same thing.

Q. Wherein is it different?

A. The chocolate contains a considerable portion of fat, whereas the cocoa contains very little fat.

Q. They both contain the chocolate, however, the base of the chocolate bean?

A. No, I would not say they contained the base of the chocolate bean.

Q. Do they contain anything from the chocolate bean?

A. Yes,—oh yes.

Q. Both of them do?

A. Yes; what I said a moment ago.

Q. Is it not further true, Doctor, that coffee, tea and chocolate are all furnished by the National Government as part of the rations to the soldiers, sailors, inmates of the soldiers' homes, and of other national institutions?

A. I have heard so. I do not know from my own knowledge.

Mr. Miller: I object to what he has heard, your Honor please.

BY MR. SIZER:

Q. You do not know that of your own knowledge?

A. No, sir.

Q. Did you testify on yesterday, Doctor, that caffeine in coffee is not free?

A. Part of it may be free and part may be a combination, or associated in loose combination.

Q. You say it may be. Do you know whether it is free or in combination?

A. A recent writer has said it was not in combination, but that is only one authority.

Q. Personally, do you know how it is?

A. It is in part combination and part free. That is my experience.

Q. How do you know that?

A. From examination.

Q. Have you analyzed it?

A. Coffee?

Q. Yes.

A. Yes.

Q. You mean now the coffee bean, or the infusion of coffee that is taken as a beverage?

A. I am talking about the coffee bean.

Q. The coffee bean?

A. Yes, sir.

Q. When the coffee is roasted and made into an infusion the caffeine is freed, is it not?

A. To a large extent.

Q. Is it not entirely freed?

A. I am not prepared to say that.

Q. You are not prepared to say that any of the caffeine is in combination with any other substance in the coffee drink as a beverage?

A. Not as a definite composition that we can isolate the way we can isolate chloroform.

Q. Are you prepared to say it is in combination in any way.

A. Yes, I consider it is in loose combination with the acids present in the coffee.

Q. With what acid?

A. Sometimes called caffetannic acid.

Q. What is the proportion of caffeine in combination with caffetannic acid?

A. In the coffee as it is prepared in cup form?

Q. Yes, as taken as a beverage.

A. I think most of it is in very loose combination with those products.

Q. Do you know?

A. Yes.

Q. You say you think. Do you know that is a fact?

A. I have to think before I can answer.

Q. Do you undertake to state that as a fact that the caffeine in the coffee taken as a beverage is in combination with caffetannic acid?

A. As a theoretical proposition I would say it was.

Q. I am not asking you about it as a theoretical proposition. Now, you stated a while ago you analyzed it.

A. Yes.

Q. Do you undertake to say from the analysis you have made that the caffeine in coffee when taken as a beverage is in combination with caffetannic acid?

A. In making my exxaminations, I always treat it in such way as to eliminate the caffeine from its combinations.

Q. Then it was liberated when you analyzed it?

A. When I began the operation it was necessary to liberate the caffeine from its combination before it could be separated from its products.

Q. Do you never find any caffeine in combination with caffetannic acid in any analyses you made of the beverage coffee?

A. Yes. I stated before the caffeine could be separated it had to be—I mean, before the caffeine could be taken out of the substance in toto it had to be liberated from its combination, however weak that combination may be.

Q. You stated a while ago that the caffeine in the coffee taken as a beverage was practically all free, did you not?

A. In a loose sense of the word; yes.

Q. In what sense is it not true?

A. In the sense I have just indicated.

Q. What is caffetannic acid, anyway?

A. It is a form of tannin that is found and peculiar to the coffee bean.

Q. It is a form of tannic acid that is found in coffee, is it not?

A. In the coffee; yes.

Q. In the coffee bean?

A. In coffee.

Q. In what way is the caffeine combined now with the tannic acid in coffee?

A. A loose chemical combination. Caffeine is the base and the acid, the caffetannic acid, acts as an acid.

Q. In your process of analysis, however, you first treat the infusion so as to release the caffeine and take it out free?

A. That is the usual process.

Q. Did you ever try it the other way?

A. I have.

Q. And did not get the caffeine?

A. I got some of it out.

Q. How much did you get out?

A. A goodly proportion.

Q. What per cent.?

A. It would vary with the conditions under which it was made.

Q. What was the largest per cent. you ever got out?

A. Of the total quantity present?

Q. Yes.

A. I have gotten eighty per cent. out.

Q. Eight?

A. Eighty per cent.

Q. Did you say on yesterday, Doctor, that the effect of caffeine would be lessened when taken on a full stomach?

A. Yes.

Q. As a matter of fact, do not the authorities hold that the effect is least when taken between meals, neither on a full nor an empty stomach?

A. I do not know such an authority.

Q. You do not know an authority that holds that?

A. I do not know any, no.

Q. Are you familiar with the work by Hutchinson on food and digestics?

A. I am. I have read it.

Q. That is a good authority, is it not?

A. Oh, yes.

Q. I have read this work now, on page 317, this extract:

> "On the whole, the effects, that is of tea and coffee, are probably less when the stomach is neither quite empty nor too full, but contains a moderate amout of easily digested food, a state of things which, one is glad to say, is pretty well true at afternoon tea."

Do you agree with that statement?

A. The stomach is neither entirely empty nor too full?

Q. Yes.

A. I think that is all right.

Q. Such, for instance, as prevails when tea is taken at an afternoon tea?

A. It depends entirely on when your afternoon tea is taken.

Q. Between meals the stomach is neither empty nor full, it it?

A. That depends entirely on the condition of the individual.

Q. And depends entirely on the length of time between the meals?

A. Yes.

Q. As a rule, the stomach is never entirely empty until about the time to take a run in, is not that true?

A. I don't think the stomach is ever absolutely empty where there is marked purging and vomiting, certain poisonous conditions, and in cases of pregnancy where there is abnormal vomiting.

Q. What do you say about caffeine being modified by colloidal substances in coffee?

A. I said that caffeine, when introduced into the stomach in conjunction with or in the presence of colloidal substances, or dummy material, that the caffeine is absorbed less rapidly.

Q. What are the colloidal substances in coffee?

A. Albumenous material would be considered one. All abbumenous material would be of that class, and dummy matter in the coffee, even fat, fatty material, would be classed under bodies of that character.

Q. And so caramel is the colloidal substance, too, is it not?

A. There is some in there; yes.

Q. And there is caramel in Coca-Cola also?

A. Yes.

Mr. Sizer: I think that is all, your Honor.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. Does the caramel that is found in Coca-Cola naturally unite with the caffeine, as the caffeine is naturally united with these other substances that you have described in coffee?

A. Oh, no; no.

Q. Caffeine is free in the Coca-Cola absolutely?

A. Yes.

Q. Now, as to Hutchinson's statement where he describes the condition of the stomach as to how full the stomach is, state whether or not that depends on how

much meals you eat and how long before you have eaten them.

A. Yes.

Q. Why is it, if you know, that Hutchinson refers to the most favorable time, or rather, the least injurious time when caffeine can be taken as being the time when the stomach is not entirely empty and not too full?

Mr. Sizer: I object to that, your Honor.

The Court: The objection is sustained.

BY MR. MILLER:

Q. I ask you whether or not, from the context as read to you by adversary counsel, you understand why it is that Hutchinson advocates the taking of caffeine when the stomach is not empty and not too full.

Mr. Sizer: I object to that.

The Court: The exception is sustained.

Mr. Miller: We respectfully note an exception.

The Court: The exception may be noted.

BY MR. MILLER:

Q. Doctor, have you ever made an analysis of Coca-Cola yourself?

A. No, sir; except in part. I have determined the presence of certain constituents but never made a quantitative analysis.

Q. When was that analysis made that you did make?

A. Oh, I made it three or four years ago, and I have tested portions of the material from time to time; but just determined the sugar or flavoring matter, or products of that type.

Q. Taking the analysis as given by Doctor Fuller on the witness stand, I will ask you if there is any other habit-forming agent or ingredient in Coca-Cola except that of caffeine.

A. I know of none.

Mr. Sizer: I object. He says he made no analysis of Coca-Cola except to determine certain flavoring extracts.

Mr. Miller: My question was, taking the analysis as given by Doctor Fuller on the witness stand—this man has qualified as an expert on toxics and drugs.

The Court: Did you hear Doctor Fuller's statement as to what was contained in Coca-Cola?

The Witness: Yes, sir.

Mr. Sizer: May it please your Honor, the witness has not testified that caffeine is a habit-forming drug yet, as I understand. I do not recall that he was asked about that subject. I object to the form of that question.

The Court: The exception is sustained.

BY MR. MILLER:

Q. I will ask you whether or not in your opinion caffeine is a habit-forming drug.

A. I so consider it.

Q. Now then, taking Doctor Fuller's statement as given on the witness stand as to the contents of Coca-Cola, I will ask you whether or not there is any other substance, agent or constituent of Coca-Cola, that would be habit-forming, except caffeine.

A. I know of none.

Q. Did I understand you to say that you had never made a certain kind of analysis? What analysis was that, that you did state that you had never made such a one, yourself?

A. A complete quantitative analysis.

Q. Did you make a quantitative analysis of the product that was seized in this case?

A. No, sir.

Q. Did you ever make a complete analysis of any Coca-Cola mixture?

A. No, sir; not personally.

Q. You are not prepared to say as to what the constituents of it have been for a number of years past?

A. I know what ——

Q. (Interrupting) I mean, of your personal knowledge.

A. I know what the major portion of the constituents have been and are, or are, as to their presence, but not as to their quantity, from my own examination.

Q. Now, from your own examination, what are the major portions of the constituents that you know of?

A. Sugar, water, caramel, caffeine and flavoring agents. Those are the only ones I have detected—that I have determined.

Q. And you made your determination first when?

A. I made that examination probably four years ago.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor, on what do you base the statement that you consider caffeine a habit-forming substance?

A. General observation.

Q. You do not base it on your own experience?

A. No.

Q. You do not base it on any medical authorities?

A. I do not think that I can cite any at present.

Q. Do you base it on any definite experiments you have made?

A. No.

Q. You base it then simply on observations you say that you have made from time to time of people in the habit of taking a caffeine-containing substance?

A. Yes.

Q. And those observations you have detailed fully on your examination in chief on yesterday?

A. I don't know about that.

Q. Did you not, in reply to questions by counsel for the Government in this case, state on your examination in chief on yesterday the observa,tions that you had made with respect to the use, for instance, of Coca-Cola?

A. Yes, stated part of my observations; yes.

Q. Have you made any other observaitnos, in addition to those already testified about, on which you base the statement that you consider caffeine a habit-forming substance?

A. Generally—I have met with persons—well, I may make that general. That is my general observation. Probably I covered it yesterday.

Q. I want to know specifically whether you have made any other observations on which you base that opinion, any other than those you testified to on yesterday.

A. I would like to have that testimony read, if it will be necessary to make it absolutely explicit. I do not remember it in detail.

Q. Do you now recall that you ever made any other observations on the subject that would induce you to form or express that opinion, aside from those you testified about on yesterday?

A. I do not know.

Q. You think that the use of caffeine-containing substances induces to the formation of a habit? That has been your experience, hasn't it?

A. Generally, yes.

Q. What do you mean by "habit," in this case?

A. Habit-forming, as I construe it, is a condition that is brought about in the system by the use of a chemical which, after continuing it a period of time, will leave such an impression upon the individual that when that chemical is withdrawn the system feels the need of it. For example, if a person is doing heavy mental work and he gets a headache and goes out and gets a headache powder which contains caffeine and other agents, and then he continues at work, the conditions are continued next day, he will be compelled to take another one, and so it goes on

and the ultimate result is that he will be compelled to take that mixture day after day in order to relieve the condition which is, in part, induced by the drug itself.

Q. I read you a list of articles from the eighth section of the Pure Food Act and ask you if those are what are commonly known and understood in scientific circles as habit-forming substances: Alcohol, morphine, opium, cocaine, heroin, Alpha or Beta cocaine, chloroform, cannibis indica, chloral hydrate, acetanilid and the derivatives and preparations of such substances.

Mr. Miller: Your Honor please, this word "commonly" injected there, I object to. This inquiry is not as to what is "commonly" known. If this question is pertinent at all, it is as to what are habit-forming drugs, and not as to what is commonly understood by habit-forming drugs.

The Court: I overrule the exception, the way that question was asked. You may answer the question.

The Witness: Those are the drugs enumerated in that Food and Drugs Act.

BY MR. SIZER:

Q. That was not the question I asked you, Doctor.

A. I will explain; I just wanted to get the point clear.

Q. I stated in that question that they are the articles enumerated in the Food and Drugs Act. Now, I ask you if those are not articles commonly known by scientific people as habit-forming drugs.

A. By scientific people?

Q. Yes.

A. Oh, there are a great many more.

Q. That does not include, then, in your opinion, all of the habit-forming drugs?

A. Oh, no.

Q. What other habit-forming drugs are there, not included in that list?

A. Antipyrin.

Q. That is a coal tar derivative, is it not?

A. Yes. And sulphonal, and tyronal.

Q. Are those coal tar derivatives?

A. Aspirine.

The Court: Those are included, are they?

Mr. Sizer: Yes.

The Witness: No, they are not included, Aspirine, I said; I did not say acetanilid—I said aspirine.

BY MR. SIZER:

Q. Iknow, but are they not all derivatives or preparations of coal tar substances—acetanilid?

A. I wish they were.

Q. In what respect do they differ from acetanilid?

A. Absolutely different. They may be derived from certain coal tar products, but that does not make them derivatives of acetanilid.

Q. Go on now and name any others in additions to those you have already named.

A. Well, of course that question of derivatives does not enumerate the specific substances, unless they are such as paraldehyde, ether and chloroform.

Q. Chloroform, did you say?

A. Yes.

Q. Chloroform is mentioned in the list.

A. That is right. Phenacetine.

Q. That is a coal tar product, is it not?

A. Yes.

Q. Is it not a derivative of acetanilid?

A. I so consider it.

Q. You need not mention any of those that are derivatives of any of these substances that I have read to you.

A. That is the only way the information could be given out.

Q. Ether is a derivative of alcohol, is it not?

A. It is.

Q. Therefore that is included in the list I read.

A. Not by name.

Q. I did not say included by name, but I am asking for any habit-forming substances not included in this list, which list expressly says, "Any derivative or preparation of any such substances," contained in the list.

A. Yes. I think there are a number of others that ought to have been included there.

Q. Now, I want all others.

A. I have named some of them.

Q. Are there any others now?

A. Caffeine I consider.

Q. How is that?

A. Caffeine I consider.

Q. Anything else?

A. Bromoform.

Q. What is that?

A. Bromoform.

Q. Yes.

A. That is wood alcohol in which the three atoms of hydrogen are replaced by bromine.

Q. Is it a preparation from alcohol?

A. Yes.

Q. Then that is already in the list?

A. It is not enumerated.

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Mr. Miller: I beg your pardon. That is not in the list. That says: "Derivative of alcohol."

Mr. Sizer: "Any derivative or preparation."

The Witness: Oh, yes. That is a preparation of alcohol, a derivative of alcohol.

The Court: Just omit those preparations and derivatives and we will save time by stating the others.

BY MR. SIZER:

Q. I am asking you to state the other habit-forming substances.

A. That is all I recall now.

Q. How many of those that you have stated are not derivatives or preparations from substances included in the list?

A. I have been enumerating them. I do not remember all of them now.

Q. Do you remember a single one that is not a derivative or preparation from these substances, except caffeine?

A. Yes, caffeine, antipyrine, tyronal, sulphonal and aspirine.

Q. These are all coal tar products?

A. They are commonly so-called.

Q. Is not tryonal an alcohol derivative?

A. Not under this law, as we have considered it.

Q. I am not asking you about the law. Is it an alcohol derivative?

A. I do not consider it so.

Q. Is that a coal tar product?

A. In the broad sense of the word, yes.

Q. You were asked on re-examination whether the caramel in Coca-Cola was combined with the caffeine. As a matter of fact, the colloidal bodies in coffee, as taken as a beverage, are not combined with caffeine, are they?

A. No.

Q. Assuming that to some extent caffeine and caffetannic acid are combined in coffee as taken in the form of a beverage, is it not true that the caffeine is separated from the acid by the hydrochloric acid in the stomach?

A. That is probably correct.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. You were asked for a list of medical authorities, and you stated you could not cite any at present. I will get you, if you can, to investigate and file as an exhibit to your testimony, calling it Exhibit A, a list of any med-

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ical authorities that you were asked to file and which you state at present you could not point out.

Mr. Sizer: I did not ask him to file any medical authorities.

Mr. Miller: You asked him to cite them.

Mr. Sizer: I asked him if he knew any medical authorities who classified caffeine as a habit-forming substance and that is as far as I went.

Mr. Miller: That is not as far as he went; he said at present he could not cite any. Now, I ask the privilege at least to have him file and cite, if he can, those that he can, after looking at the books. Of course a man cannot cite the page of a book here.

The Court: I think the cross-examination was merely to test his knowledge and I don't think he can supplement that knowledge by further research afterwards.

Mr. Miller: I am not an exception.

The Court: The exception may be noted.

BY MR. MILLER:

Q. You were asked as to whether any other substances were habit-forming except those named in that Food and Drugs Act. Now, aside from those which you enumerated that were in addition to those names read to you, I will ask you whether or not arsenic is a habit-forming drug.

Mr. Sizer: What is that?

Mr. Miller: Whether or not arsenic is a habit-forming drug.

A. Well, it may be to a certain extent by people who use it in the Alps for support and sustenance in their work.

Mr. Sizer: I want to object to Mr. Miller leading the witness.

The Court: I do not think that is leading—whether or not.

BY MR. MILLER:

Q. I will ask you whether or not nicotine is a habit-forming drug.

A. Oh, yes; there is no doubt of that.

Q. Are either arsenic or nicotine derivatives of the substances that were read to you by adversary counsel?

A. They are not.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. Arsenic is not what is generally known and classed as a habit-forming substance is it, Doctor?

A. No.

Q. And nicotine is not found in foods, strictly speaking, but is the alkaloid that is found in tobacco, is it not?

A. Yes.

Q. And in no other substance that the human being takes, is it?

A. Not to my knowledge.

Mr. Sizer: That is all.

The Witness: If the Court please, I would like to make a statement in conjunction with an answer I made yesterday.

The Court: You may do that.

The Witness: Which was to the effect,—the question was to the effect: "Is it not a fact that a very large proportion or a very much larger proportion of caffeine is used in the form of beverages than in the form of drugs?" I will answer that question "No" upon reflection.

BY MR. SIZER:

Q. How did you answer that question yesterday?

A. I think I answered it "Possibly."

Q. How did you come to change your mind about it?

A. I was reading my testimony over to-day, this morning, and I happened to notice it and from my knowledge I found I was in error.

Q. Do you know the quantity of caffeine that is consumed in the form of tea and coffee annually?

Mr. Miller: I submit that is immaterial.

Mr. Sizer: I want to find out. He says now he has changed his mind and I want to know how far he knows about that.

Mr. Miller: I still submit that is incompetent.

The Court: I really do not see the relevancy of this whole question. You are getting into pretty collateral matters, gentlemen, I think.

(Witness excused.)

DR. LOUIS LE ROY,

of lawful age, was produced as a witness by and on behalf of the Government, and having been first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor Le Roy, where do you reside?

A. In Memphis, Tennessee.

Q. State where you were educated and what your profession is.

A. I am a physician. I graduated in medicine in Philadelphia, from the Medical Chirurgical College.

Q. How long have you been practicing medicine?

A. Since 1896.

Q. What connection have you with the state medical association?

A. I am a member of the state medical association.

Q. What connection have you with the state board of health of Tennessee?

A. I am vice-president, at the present time.

Q. State what professorships or chairs you have filled in connection with Vanderbilt or any other university.

A. I held the chair of Pathology and Bacteriology in Vanderbilt for a number of years. At present I have the chair of Practice in the University of Memphis.

Q. Is that Vanderbilt University located in Nashville?

A. At Nashville; yes, sir.

Q. Did you hold any position in the State of Tennessee, and if so, for how long?

A. I was a State Bacteriologist of Tennessee for a number of years; eight or ten.

Q. State whether or not you are now engaged in a general practice?

A. Yes, sir; I am.

Q. Have you had occasion to study and investigate as to nervous and stomach troubles?

A. Yes, sir.

Q. I will get you to state whether or not you have had any experience with Coca-Cola, what is generally known and sold on the market as Coca-Cola, in the city of Memphis.

A. Yes, sir.

Q. And prepared and sent out by the Coca-Cola Company of Atlanta.

A. I don't know about that. I know about the Coca-Cola as it is labeled and dispensed.

Q. In the City of Memphis?

A. Yes, sir.

Q. State whether or not you have ever consumed any of it yourself?

A. Yes, sir; I have.

Q. And what was your personal experience with it?

A. The first experience I had with it was ten or fifteen years ago, when I first tried it. They had some little soda fountain stand opposite my laboratory. It was in the summer time and I started to drinking some of it there and I suppose I drank half a dozen or so bottles a day, and I found very soon I would have to leave it alone.

Q. Why so?

A. I got nervous and could not do—my hand got trembling and I could not do fine work, and I realized something

was doing it and I found out it evidently was the substance I was drinking.

Q. When you quit consuming Coca-Cola what was the result as to your nervous and physical condition? Did it improve or otherwise?

A. Did you say before——

Q. (Interrupting) No, when you ceased and left it off.

A. Oh, I straightened out in a day or two all right.

Q. State whether or not Coca-Cola, from your personal experience with it, was habit-forming.

A. Well, it tended to make me want more, for the time that I used it. I never got into a definite habit, because I only used it for a week or ten days, and then found out it was not doing me any good, so I let it alone.

Q. Have you had occasion to treat any persons who were confirmed Coca-Cola habitues or consumers, since that and from that date down to the present, in your practice?

A. I frequently had patients who were using a good deal of it, they told me.

Mr. Sizer: I object to what the patients told him.

The Court: I think that he can state as to the general results of the patients' experiences and statements made to him by his patients, where he has treated people using Coca-Cola. I think it has come to the point where information a physician has received becomes part of his knowledge.

BY MR. MILLER:

Q. State in a general way whether or not you have had occasion to treat users and consumers of Coca-Cola.

A. I have had occasion to treat patients who were users of it.

Q. State whether or not you have seen them use it, and consume it at the fountains.

A. Yes, sir; I have. I have taken some with them probably.

Q. State the condition of those patients; that is, as to their nerves particularly.

A. As a rule they were nervous and irascible, and as a rule, or frequently, statements would be made at the time that: "This stuff is getting on my nerves," or something of that kind.

Mr. Sizer: I object to that.

The Court: Yes. You can eliminate that. The exception is sustained as to that statement.

BY MR. MILLER:

Q. Eliminate what they said as to the condition of

their nerves but state what you found as to the condition of their nerves.

A. I observed they were more or less shaky and somewhat nervous.

Q. As they would give up the use of Coca-Cola, if they did give it up under your direction and treatment, state whether or not their nervous condition would improve.

A. Generally, yes.

Q. Were those people, generally speaking, afflicted with any other habits? That is, did they habitually use any other drug except Coca-Cola?

A. Not that I know of.

Q. What was the effect on you, if it had any effect, when you would take a bottle or glass of it near the evening meal, as to sleep?

A. I cannot take it at night, it keeps me awake. I took one bottle of it a year or two ago when I was convalescing from typhoid fever and it kept me awake for forty-eight hours or more.

Q. Speaking from your experience, you yourself and your patients, state whether or not the use of Coca-Cola induces sleeplessness and wakefulness.

A. It is very apt to.

Q. State whether or not,—or did I ask you, as to whether or not the use of Coca-Cola was habit-forming? If I did not, I ask it now.

A. It has a tendency that way.

Q. In what class of persons are the habit-forming propensities most marked?

A. In neurotic—nervous, patients. And nervous women, especially—probably.

Q. Is that class of persons as a rule as capable of resisting the habit or the ravages of habit-forming drugs as persons who are in robust health?

A. Nowheres nearly; no, sir.

Q. Did you hear the reading of the reported cases of deaths due to caffeine poisoning, as given in evidence yesterday by Doctor Kebler, where the contracted heart was described?

A. Yes, sir; I heard it, most of it, I think.

Q. State if the persons—that is, the number of those persons that were reported to have been afflicted with diseases, leaving out the young women that was not afflicted, those that were afflicted with typhoid fever, pneumonia or diptheria,—if they had died of those diseases and without the effects of caffeine on the heart, whether they probably would have had the heart manifestations that were described by the author of those treatises.

A. If they had simply died of a poisoning from the diseases as mentioned, the ordinary course of the disease, the heart would have been found relaxed and more or less flabby. The heart was described as being very much contraced and systolic. Caffeine might have been responsible for that, but there are some other drugs which might have also been responsible for the heart being firmly contracted after death.

Q. Caffeine might have produced that condition?

A. Yes, sir.

Q. State whether or not you have made frequent post mortem examinations.

A. Yes, sir, I have made a great many of them.

Q. What is the effect of the taking of caffeine on the human system, as regards energy which is stored or generated?

A. It seems to enable the body to utilize more energy that it could otherwise utilize. A man can put forth more effort and sustain it a little longer under the action of caffeine than he could without it, but that excessive work is at the expense of his reserve energy.

Q. In a person of normal health, is there or not a force prepared by nature called reserve energy?

A. Yes, sir.

Q. State whether or not you have studied bacteriology.

A. Yes, sir, a good deal.

Q. Were you ever a Professor of Pathology, they call it?

A. Yes, sir, for a number of years in Vanderbilt.

Q. State wheather or not you teach bacteriology also.

A. I have charge of the laboratory.

Q. I will get you to state if you ever held any position in the City of Nashville.

A I was city bacteriologist for a while there.

Q. Now, assume that Coca-Cola is made of simple syrup in which there are several flavoring extracts, and a large proportion, something like fifty or fifty-two per cent. of sugar, and the sugar and water are put in a kettle in one portion of the factory, a room in one corner, and that the sugar is dumped in there by a negro, or a white man for that matter, who is hardly clad, expectorating tobacco on the floor, there are no cuspidors, expectorating on the floor of the platform from which the sugar is dumped, and that occasionaly sugar will lodge on the platform, that the man who dumps it in is inclined to kick it with his toes, and the toes of his shoes are out exposing his bare feet and other employes in the factory building perspiring freely, and clad about as I have described, and there is on

the floor of that factory building a toilet that is ventilated from the inside of the factory, not from the outside, and this syrup consisting of sugar and water, as I have described, is at the boiling point at that place, and it is then drawn down into cooling tanks, or first into the mixing tank, into the basement below, that the floor of the basement where the mixture is brought to the boiling point is overhead of the ceiling portion of the basement below, and that after this mixture is brought to the mixing tank there is mixed with it flavoring extracts as I have described, including a per cent. of caffeine, varying from nine-one hundredths grain to one and twenty-one hundredths grain, and that after the mixture is—well, this per cent. of caffeine, I should have stated is in each ounce of the mixture—then, that after the material is complete, it is placed in settling tanks, or cooling tanks, that they are suspended from the over-head ceiling of the basement which forms the floor of the first room, and that these tanks are near enough to the outside so that a man from the outside could reach fromthe outside and put his hand in some of them, that the outside of this factory adjoins a street along which street cars are from time to time passing and that a basement floor which is of concrete, contains holes in which water gathers and stands, and that the basement floor is drained by a sink in the center which connects with the sewers of Atlanta, and assuming that there are overhanging spider webs, and the windows of this building and basement floor of the building on the sides connecting with these streets are open and are drawn by a cord or mechanistreets are open and are drawn by a cord or mechanical cal devices, that there are about eighteen inches to feet drawn back like a transom, allowing the air to come in from the outside, the product is allowed to cool in that way, that after that time there is a careful analysis made of ten gallons of that mixture and that there are found in it a bee and remnants of insects—I will get you to state whether or not that product or mixture was damaged or inferior as compared with one that is made under more favorable sanitary conditions.

Mr. Sizer: I object to the question being put in that way. This witness qualified as a bacteriologist, and he can ask him whether there would be any germs in it, that would be proper, and I would not object to it, but the question whether it would be damaged or inferior, is not a question that he is qualified to pass an expert opinion on.

The Court: The exception is sustained. It is a question for the jury under the charge of the court ——

Mr. Miller: I note an exception.

BY MR. MILLER:

Q. State whether or not the mixture prepared in that way would be likely to contain germs.

A. It is practically certain to contain some.

Q. And if a bee, or other forms of animal life were found in it, such as I have described, would it or not, in your opinion, render the product of an inferior character?

A. I think it would .

Q. You think it would?

A. Yes, sir.

Mr. Miller: You may cross-examine him, Mr. Sizer.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, is there anything on the face of this earth that has not got more or less germs it it?

A. Some things, I suppose.

Q. The air is full of it?

A. Yes, sir; there is some in the air.

Q. And the water is filled with it?

A. Hardly full, it contains some.

Q. Your hands have germs all over them?

A. Yes, sir.

Q. You breathe them in and swallow them into your stomach every minute and every hour and every day?

A. Yes, sir.

Q. Doctor, are there disease producing germs that could live in a solution of sugar?

A. For a reasonable time.

Q. Well, how long?

A. Hours, probably.

Q. For an hour?

A. Hours.

Q. How many hours?

A. It depends upon the concentration of the sugar, but I would not be surprised to see some of the living ones live twenty-four hours, and the sphores will last a long length of time, for years.

Q. Suppose the solution contained fifty-two per cent. solution of sugar, would it, I mean any germs, live in it?

Q. I could not say definitely as to the hours, because they are various kinds of organisms, no two of them would be killed within the same length of time, so far as the spohres are concerned, they would live indefinitely.

Q. Would there be any sphores or bacteria live in that

except such as were harmless and would not produce disease?

A. In the sugar?

Q. Yes.

A. Several of them which form sphores could stay in there indefinitely.

Q. What kind of germs, or sphores or producing, disease-producing sphoes, will live more than a few hours?

A. Lockjaw and other anthrax, those are the first two that suggest themselves to me.

Q. Those are all?

A. The only two I think of at the moment.

Q. Have you ever made any personal investigation as to how long disease-producing germs will live in a solution of this kind?

A. No, sir.

Q. Then you do not base your statement on any personal investigation of your own?

A. Not on that one point.

Q. Now, then, to go to your personal use of Coca-Cola, I believe you say at one time you took half a dozen bottles a day; for how long was that?

A. For a week—no, two weeks or ten days.

Q. And at the end of two weeks, you don't think it was doing you any good, or you didn't think so, and you quit it?

A. Yes, sir.

Q. How much alcohol were you taking at that time, Doctor?

A. None whatever, I don't use it at all.

Q. You don't use it?

A. No, sir.

Q. Were you taking tea and coffee?

A. No, sir.

Q. Neither one?

A. No, sir.

Q. Did you ever use tea or coffee?

A. Coffee, seldom tea.

Q. You were not using coffee during the two weeks you took the Coca-Cola?

A. No, sir, I was not at all, I had not used it for over a year, I was in training, and for athletic reasons left it alone.

Q. Then you were taking Coca-Cola as a substitute while you were undergoing training?

A. I took it because I was thirsty and it was hot weather and Coca-Cola tasted good.

Q. And at that time, you were undergoing training for

some athletic feat?

A. Yes, sir, getting into shape.

Q. What kind of an athletic performance?

A. Canoe racing.

The Court: Well, I think that is immaterial, Mr. Sizer.

BY MR. SIZER:

Q. You remember about the date when you took that Coca-Cola?

A. I assume it was along about in 1897.

Q. Well, was that the bottled Coca-Cola?

A. Yes, sir.

Q. 1897; do you mean 1897 or 1907?

A. No, I think it was before 1900. I won't make that statement positively, but I think that was when it was, and I think it was the bottled stuff.

Q. That is the only experience you have had with the use of it?

A Yes, sir, for any length of time. I took Coca-Cola, drank it—I mentioned one other instance, when I had typhoid, it kept me awake

Q. How many patients have you treated that you personally knew to be consumers of Coca-Cola?

A. I could not say, it is a very common drink, and it is a very common occurence to hear the thing mentioned by people.

Q. I am not talking about what was said to you. Did you have any personal knowledge as to how much any of your patients took per day?

A. No, sir; I have not.

Q. Your testimony then, to the effect that Coca-Cola is habit-forming is based on your personal experience, it it?

A. Yes, sir, and reports given to me.

Q. And reports given to you?

A. Yes, sir.

Q. And aside from your personal experience, you have nothing on which to base it except reports?

A. Statements of people who claimed to have been using it.

Q. You do not know of any medical authorities that treat of caffeine as a habit-forming drug?

A. I don't believe I can recall any.

Q. You say that one time when you had typhoid fever, you drank some Coca-Cola?

A. Yes, sir.

Q. And were kept awake by it?

A. Yes, sir.

Q. Is insomnia a common sympton of typhoid fever?

A. Well, it had not been in my case, I had slept all the way through.

Q. Isn't it a sympton that frequently develops in typhoid fever?

A. Yes, sir, but this was not during the typhoid, it was during the convalesence. I was over the fever, I did not have any fever.

Q. You took this Coca-Cola during the convalesence?

A. Yes, sir.

Q. Do you very often find contraction of the heart from rigor mortis after death?

A. Not what we call contraction. I make a distinction between hardening of the muscle and contraction.

Q. The heart is hard from rigor mortis after death?

A. No, sir, not very hard.

Q. Well, would that depend on the length of time after death that the autopsy was performed?

A. Yes, sir.

Q. Would it be harder if the autopsy was performed at a certain time than if earlier or later?

A. Yes, sir.

Q. In the particular cases referred to, the periodicals about which you were asked on examination in chief, do they give anything to show the length of time after death that the autopsies were performed?

A. I did't hear anything bearing on the subject.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. State whether or not the physician attending the holding of the autopsy, is better prepared to speak, and is always so recognized by medical men, as to the conditions and causes of death, than any other person, and that medical students and physicians all accept their statement.

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: We take an exception.

BY MR. MILLER:

Q. Now as to sphores, what do you mean by sphores, Doctor?

A. Sphores are certain resting kinds of bacteria in which condition they can withstand adverse environments which would kill the ordinary bacteria. You might say that they bear the same relation to bacteria as seeds bear

to plants. That is a rough illustration.

Q. As to the patients you have treated for Coca-Cola habit, state whether or not you have seen them partake of it.

A. Yes, sir; I have a few times.

(Witness Excused)

GEORGE R. STEWART,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. You are George R. Stewart, are you?

A. Yes, sir.

Q. Where do you reside, Doctor?

A. Cleveland, Tennessee.

Q. How long have you lived in this section of the country, Doctor?

A. I have lived at Cleveland about twenty-five years.

Q. In what are you engaged, Dr. Stewart?

A. I am engaged in the ministry and on the lecture platform.

Q. How long have you been thus engaged?

A. Since I was nineteen years of age, I have been a minister. I am fifty-three; fifty-three from nineteen would give it.

Q. How long have you been engaged in traveling and lecturing?

A. I should say about twenty years on the lecture platform.

Q. State the nature of your travels, that is, where you have been, in what sections of the country, and how frequently, during the last ten or fifteen years.

A. Well, I have been over the United States, I have covered the United States about once a year, practically. I go from Maine to California and from Maine to the Gulf. For the past two weeks, I have been from Lansing, Michigan, to St. Petersburg, Florida.

A. I will get you to state whether or not you lecture in the night or the evening, Doctor?

A. Usually at night; in the evening it is called in the North, at night in the South.

Q. And after your lecture, state whether or not you are accustomed to visiting drug stores and soda fountains where Coca-Cola is dispensed.

A. I go to drug stores, to the soda fountains, usually

after speaking at night, for a glass of lemonade, that is all that I take there.

Q. And that is usually about what hour of night, Doctor?

A. Somewhat varies, owing to the exercise I am in. Sometimes it is ten o'clock and sometimes it is ten-thirty; sometimes I go towards the train and drop in at eleven or twelve o'clock.

Q. I will get you to state what you have observed during those hours in the evening, or night, as to the sale and consumption of Coca-Cola.

A. Well, I am a pretty close observer of the actions of young people, that is my work, and I have observed in the drug stores a very abundant sale of Coca-Cola.

Q. At the hours you have stated?

A. At all hours at which I have attended drug stores.

Q. State whether or not there has been any discrimination to your knowledge, in the sale and consumption of it as between older persons and very young persons.

A. I never noticed anything of that kind.

Q. State whether or not you have observed children drinking it and calling for and being served Coca-Cola indiscriminately?

A. I have observed that frequently.

Q. Down to what ages, Doctor, have your observations in that respect been made?

A. Well, I don't know that I ever noticed a child that I would consider under ten or twleve years of age.

Q. At that time of the night?

A. Well, no, I would not say that I have seen children late at night—younger boys and girls and other ages later at night. I have seen children in the afternoon.

Q. Have you had occasion to observe the evidences of Coca-Cola on humanity after being consumed?

A. I have had occasion to note one particular effect—

Mr. Sizer: (Interrupting) May it please your Honor, I will object to the testimony of the Doctor as to the effects he may have observed for the reason that he has not qualified as an medical expert, and is not competent to testify on that point.

Gen. Cox: Suppose he is speaking as to the physical effects, as to what he saw.

Mr. Sizer: He might testify to something having an effect which is purely a coincident, unless he is an expert.

Mr. Miller: If counsel is unwilling for Dr. Stewart to tell about that, or other instances, we will simply withdraw it.

Mr. Sizer: I do not think that a play of that kind is

called for or is proper before the jury.

Mr. Miller: I would be very glad if he would permit the Doctor to answer that question, and not only that but other questions ——

The Court: (Interrupting) The question is objected to and withdrawn.

Mr. Sizer: Do you withdraw that question, Mr. Miller?

Mr. Miller: Yes.

Mr. Sizer: Then I withdraw the objection.

The Court: Well, proceed with the examination of the witness.

Mr. Sizer: That is all, Doctor.

(Witness Excused).

Mr. Miller: I will now read the deposition of Hugo DuBois, which is as follows:

HUGO DuBOIS,

the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. What is your business and where do you reside?

A. Chemical business, I reside in New York City.

Q. In what particular department of the chemical business are you engaged?

A. We have a great many departments, but principally the Textile and Pharmaceutical Departments.

Q. Are you engaged in this business as an individual or in connection with a corporation?

A. In conection with a corporation.

Q. And what is the name of the corporation?

A. The Roessler & Hasslacher Chemical Company.

Q. And what official position do you hold in that corporation?

A. I am one of the directors and secretary of the company.

Q. For how long have you been connected with the company?

A. Since 1897.

Q. Does your company sustain any relation, contractural or otherwise, to the Coca-Cola Company of Atlanta, Georgia, of which Mr. Asa G. Candler is president, and to the Alkaloid Works of which Mr. Lewis Schaefer is president, and if so, what?

A. We act as selling agents of the Schaefer Alkaloid Works, for a number of articles that they manufacture, and

as such agents, have contracts with the Coca Cola Company.

Q. You handle several products that are produced by the Schaefer Alkaloid Works?

A. Yes.

Q. Their plant is at Maywood, New Jersey?

A. Yes, sir.

Q. Among other products produced by the Schaefer Alkaloid Works is that of Merchandise No. 5?

A. Yes, sir.

Q. Is that product received by your company direct from the Schaefer Alkaloid Works?

A. Yes, sir.

Q. And then what is done with it?

A. It goes into our warehouse and from our warehouse it is being shipped out to different branches of the Coca Cola Company; that is to their different branches.

Q. That shipping is done under and by virtue of an arrangement with the Coca-Cola Company?

A. How?

Q. That shipping out from your warehouse is under and by virtue of an arrangement and contract with the Coca-Cola Company of Atlanta?

A. Yes.

Q. From whom are remittances received for shipments made?

A. From the Coca-Cola Company.

Q. Does your company supply to the Coca-Cola Company any other produce of the Schaefer Alkaloid Works except Merchandise No. 5, and if so, what?

A. Caffeine.

Q. State whether or not there is added to the caffeine or to the Merchandise No. 5 after it is received by your company and before the shipment to the Coca-Cola Company, of its various branches any other ingredient, composed or substance of any kind?

A. There is not.

Q. Is it treated in any way by your company after being received from the Alkaloid Works before shipment?

A. Not at all.

Q. Then the fact is that Merchandise No. 5 and the caffeine as received by your company from the Schaefer Alkaloid Works are shipped in the same state and condition as when received?

A. Exactly.

Q. In other words, your company simply acts as the selling and distributing agents of these products?

A. Yes, exactly.

Q. And in addition it handles several other products that are manufactured by the Schaefer Alkaloid Works?
A. Yes.

CROSS-EXAMINATION.

BY MR. HIRSCH:

Q. Mr. DuBois, in what sort of receptacles do you receive Merchandise No. 5?
A. In barrels.
Q. Are those barrels sealed?
A. Those barrels—what do you mean by sealed?
Q. I mean is there any way by which they could be identified by any mark the Schaefer Alkaloid Works puts on them?
A. Yes, they are marked "Schaefer Alkaloid Works."
Q. Is that mark removed?
A. No.
Q. And it is sent in the same identical receptical you receive it?
A. Yes, receive it in that shape and ship it in the same way.

Q. Is the caffeine also marked?
A. Yes.
Q. No changes in any manner whatsoever?
A. No, sir.
Q. Sent the same way.
A. Yes.

RE-EXAMINATION.

BY MR. MILLER:

Q. In what size packages is that caffeine received from the Alkaloid works and sent out?
A. It is received in five, ten and twenty pound tins.
Q. Now about Merchandise No. 5, what size packages do you receive it in and ship it in?
A. So-called forty-seven gallon barrels.

RE-CROSS EXAMINATION.

By Mr. Hirsch:

Q. What are those barrels made out of, Mr. Dubois?
A. They are so-called second-hand whiskey barrels, oak barrels.

Mr. Miller: I will now read the deposition of Edwin B. Corry.

EDWIN B. CORRY,

the next witness on behalf of the Government, of lawful

age, first duly sworn deposed as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. How old are you Mr. Corry?

A. Thirty-seven.

Q. And where do you reside?

A. Do you want my address?

Q. Yes, in what City?

A. In Philadelphia, North 29th street.

Q. How long have you resided in Philadelphia or approximately, how long?

A. Thirty-seven years.

Q. Now, state whether you ever became accustomed to drinking a substance that is known, generally known, sold and dispensed at the drug stores as "Coca-Cola" served in carbonated water?

A I have.

Q. About when did you first begin to use it daily?

A. 1896 or 1897.

Q. At that time did you drink it regularly or only occasionally?

A. Occasionally.

Q. When did you first commence to use it daily or about when?

A. The first of 1904.

Q In what business were you engagged at that time?

A. Street car work.

Q. What position did you hold with the street car company that operates the street car system in the city of Philadelphia?

A. A conductor.

Q. How long, or approximately did you hold that position?

A. Seven years.

Q. About when did you retire or sever your connection with that company?

A. July of the present year.

Q. State whether or not your service up to that time had been continuous or practically so?

A. With the company you mean?

Q. Yes.

A. Yes sir, not counting any vacation of course.

Q. State whether or not during any portion of that time you drank coca-cola, both from bottles and also from the soft drink stands, that is soda fountains at drug stores in Philadelphia?

A. Yes sir, during all that time.

Q. Commencing with 1904, state whether or not the quantity consumed daily up to the time you ceased drinking it, if you did, increased or diminished?

A. It increased.

Q. Have you ceased the use of it, and if so, about when?

A. The middle of this past July ceased intirely.

Q. That is of July, 1910?

A. Yes.

Q. State whether or not during this period the desire for coca-cola or its effect increased and became habitual? I mean with you?

A. Yes.

Q. What effect would it have on you, when you would drink it either from bottles or from the fountain?

A. It would have what I would call a refreshing effect, somewhat stimulating or invigorating, that is about the best I can describe that.

Q. And when you would be fatigued or feel fagged or tired, and would drink one or more glasses of it, would it or not revive you?

A. It did.

Q. What quantity of it did you finally consume as the habit increased?

A. About a dozen drinks a day.

Q. State whether or not you were acquainted with other persons who were accustomed to use it, and take it from fountains and in bottles as you were?

A. Yes I was.

Q. What effect did it finally have on your sleep, your rest, or in other words, for some months prior to the time you ceased drinking it, what was your condition with respect to sleep and health, just describe it?

A. Why, I became nervous for one thing, losing sleep—not all the time—the effects seemed to me what you would call intermittent, that may not be the right word.

Q. Did it or not cause you to experience peculiar sensations when you would retire at night, and if so what were they?

A. Sometimes it did, very seldom. I don't remember more than three occasions I would retire and I understood at the time I was not asleep, just to fall asleep when the bed would move—I had that sensation—some times the head part of the bed would raise up, and sometimes be the 'hind part, I don't know whether that belongs to that or not, my impression is that it does.

Q. You don't know whether or not that was the effect of the coca-cola or not, but your impression is that it was?

A. Yes.

Q. Now, when it would momentarily appear to you that the bed would move or change positions, would you or not convince yourself that you were mistaken and if so, how did you do so?

A. As soon as the effect was over I sat up on the edge of the bed; as I described it once to a party, I wanted to locate myself.

Q. After you ceased using coca-cola state whether or not your general health and your nervous condition and your disposition to sleeplessness improved?

A. It improved.

Q. Were you accustomed to usingg drugs or stimulants of any kind other than coca-cola?

A. No, except tobacco.

Q. And do you use that yet?

A. Yes, at times.

Q. Since you have broken off the habit of coca-cola state whether or not you have continually improved?

A. I have.

Q. As a result of your use of coca-cola, or as a result of your impaired health, this last July, I believe, state whether or not you were taken to any hospital, and if so, what hospital in the city of Philadelphia?

A. Yes, to the Philadelphia General Hospital.

Q. Are you acquainted with Dr. Theodore Weisenburg, who is present at this time?

A. Yes, I am.

Q. State whether or not you were examined by Dr. Weisenburg both at the hospital and at his office?

A. I was at both places.

Q. Which examination took place first, the examination at the hospital or at his office?

A. The hospital first.

Q. State whether or not he inquired as to your past condition, and your daily habits and life?

A. He did.

Q. Did you or not relate them to him fully?

A. I believe so.

Q. You endeavored to do so?

A. Yes, I did.

CROSS-EXAMINATION.

BY MR. HIRSCH:

Q. Mr. Corry, you say you have lived in Philadelphia thirty-seven years?

A. Yes.

Q. I wish you would give me each and every place you have lived in Philadelphia.

A. Each and every place?

Q. Yes, as far as you can remember.

A. I have not lived in many houses. Do you want the address of them?

Q. Yes.

A. I can't give you all of them.

Q. Well, as far as you can give me the address of each and every place you have lived, and the time you lived at those several places, I don't ask you to be entirely accurate.

A. I was born at 910 Ontario street, that would be Park avenue now—the name has been changed; and there I think I was about a year, and the next place was only there about a year, 1300 and something Heath street, that is changed now, I don't know what it is; then to 1500 and something South Jupiner street, I don't know the number but the last house; we were nine months there; then to 1522 Jupiner, I think 18 years there; then 1645 29th street, I went there in 1895, about 16 years now, and that is all.

Q. That accounts for your entire residence in Philadelphia, does it not?

A. Yes, all the houses I have lived in.

Q. Now, just describe to me the best you can the condition of those places that you lived.

A. So far as I know they were all healthy, well repaired houses and all.

Q. Well lighted?

A. Yes.

Q. And well ventilated?

A. Yes, sir.

Q. And kept up well?

A. Yes, sir.

Q. What sickness have you had Mr. Corry?

A. When I was about four years old I think they said I had typhoid pneumonia, but I am not sure whether it was that or not.

Q. Have you had any other sickness?

A. I had measles and typhoid fever at one time.

Q. When was that?

A. I was about 17 years old.

Q. And where were you living?

A. 1522 Jupiner street.

Q. Anything else?

A. No sir.

Q. Can you tell me the name of the physician who waited on you at that time?

A. I ain't sure which of the two it was, one is dead.
Q. Give us the name of the physicians.
A. Dr. Eshelman—he is dead; the other one was Dr. Thompson.
Q. Where does he live?
A. I don't know; he went to the country for his health; he gave up business.
Q. Do you know where he went to?
A. I could find out but I don't know now.
Mr. Hirsch: Could we agree, Mr. Miller, to let him look up the address and send it to Mr. Hacker to be filed as an exhibit to his deposition?
Mr. Miller: Yes, he might do that.

BY MR. HIRSCH:

Q. Will you find out and send it to Mr. Hacker, the reporter taking your deposition?
A. Yes, my mother would know.
Q. Is your mother living?
A. Yes.
Q. Will you give Mr. Hacker the information asked for so he can put it in your deposition?
A. Yes sir; I will send it to him; I can't give it to him now.

(The statement called for above is herewith filed marked exhibit No. 1 to the deposition of this witness, and is in the words and figures following, to-wit:)

"Philadelphia, Pa., 10-21-10.

Mr. E. Hacker,
Dear Sir:
These are the addresses which I was to send to you:
Dr P. Thompson, Burlington, N. J.
Dr. F. N. Yeager, Hamilton, (Jefferson County) Penn.

Yours Resp't.
Edwin B. Corry."

"1645 North 29th St., Philadelphia, Pa."

BY MR. HIRSCH:

Q. What other illnesses have you had Mr. Corry?
A. I don't believe any more.
Q. Have you been treated by no one else until you came under the care of Dr. Weisenburg?
A. Only one that I just called to mind now, Dr. Yeager.
Q. For what did he treat you Mr. Corry?
A. For nervousness, I believe, I told him I was nervous.
Q. What is Dr. Yeager's address?
A. I don't know that; he has moved lately.

Q. Well, could you find out?
A. Yes, sir.
Q. Will you give me Dr. Yeager's initials now?
A. I can't think of them now.
Q. Is he at present living in the city of Philadelphia?
A. He has moved somewhere in Pennslyvania.
Q. Would your mother know about that?
A. Yes, I believe she would:
Q. If you can ascertain and will do so, I wish you would send it to the stenographer Mr. Hacker.
A. All right, put it in with the other one.
Q. Yes.
A. All right.
Q. What other physicians have treated you—have any other physicians treated you?
A. No.
Q. Then you have had no other diseases or sicknesses of any kind or character?
A. These were family physicians, I never went outside of them.
Q. Are your parents living, Mr. Corry?
A. Yes, sir.
Q. Both of them?
A. Yes.
Q. Were they born in this country?
A. Yes sir.
Q. You stated you had been drinking coca-cola for nine years up to July of this year?
A. Seven years; I have once or twice during the time previous to seven years, I can't tell you now.
Q. You say that your mother and father are alive and were born in this country?
A. Yes.
Q. Do they live in Philadelphia?
A. Yes sir.
Q. Were they related?
A. You mean before marriage?
Q. Yes.
A. Not as I know of.
Q. You don't know whether they were or not?
Q. No sir, could not have been; they came from two different lines.
Q. Do you know whether there has ever been any insanity in your family?
A. Not that I know of.
Q. Either one of your parents nervous?
A. My father is a little nervous now I think.
Q. How long has he been nervous?

A. I couldn"t say the exact time; I don't believe over a year.

Q. Do you know whether any of your parents have had any diseases?

A. No, my father has only been sick about twice; that is, that I know of; he has worked right through.

Q. Your father does not drink?

A. No.

Q. Or dissipate in any way?

A. No.

Q. Not in any way?

A. No, sir.

Q. Do you have much mental work or have you ever had much mental work?

A. When I worked on the cars that was pretty much mental work, observing everything that happened along, you know.

Q. Now, before you went into the employ of the street car company, did you have any mental work?

A. I worked at printing then, that makes a good deal of mental work, yes.

Q. And what were the conditions surrounding you in regard to light and air in the printing shop? I mean the one in which you worked?

A. Close.

Q. Where did you work in the printing shop?

A. Talbert, below Broad, old Dunlap building; at that time worked right over a laundry.

Q. Explain the conditions surrounding you there

A. Worked in one large room.

Q. Many people work in the same room with you?

A. No, not as many as there might have been, I forget how many there were altogether; I think we had six on one end and about a dozen on the front end.

Q. Well, go ahead.

A. The place was very warm and close on account of the laundry underneath.

Q. How long did you work there?

A. I don't believe I was there more than about two years at that building. I worked for the same firm in another building,

Q. With the same conditions surrounding you?

A. No, sir.

Q. Somewhat better?

A. Much better; except the ventilation; I don't think the ventilation was so good there for a long room and only three windows on each end of it.

Q. Where did you work before that time?

A. Before that time I worked in another printing office for only a couple of months.

Q. And where was that?

A. 420 Lively Street.

Q. What were your conditions there?

A. Very good; well ventilated room and windows all way around three sides.

Q. Plenty of light?

A. Yes, four sides, plenty of light.

Q. And working in the printing shops you have mentioned you were closely confined to your work.

A. In the last place.

Q. Did you get much exercise?

A. Not what you call exercise.

Q. Except to stand at the presses?

A. No, I was a type-setter—you have got to move in all kinds of shapes to do that.

Q. Where did you work before going into the printing establishment?

A. I worked at No. 926 Chesnut Street.

Q. What kind of work was that?

A. Errand boy; the first place I started.

Q. The first place you worked?

A. Yes.

Q. In doing your work did you get much exercise, that is as a printer and street car conductor?

A. Yes, I think I did; good deal of movement to be done.

Q. As a street car conductor, there is considerable worry attached to it?

A. Not exactly.

Q. In collecting fares and seeing nobody is hurt?

A. Strain, you might say.

Q. Were you ever under any excitement?

A. Accident?

Q. No, were you with the street car company when they had the strike in Philadelphia recently?

A. Yes.

Q. Did you work during that strike?

A. No.

Q. You quit during that strike?

A. Yes sir.

Q. Now, when you quit work with the street car company didn't the question of your means of support worry and annoy you?

A. You mean during the strike?

Q. Yes.

A. There naturally was some worry as regards the future and how things were going, you know.

Q. There was continuous excitement during that strike, was there not?

A. I don't feel exactly like calling it excitement.

Q. Call it what you mean.

A. I call it just natural exercise or strain.

Q. Did you ever drink?

A. No, sir.

Q. Never touch it?

A. I have tasted it, but never a drinker of it.

Q. Do you smoke?

A. Yes.

Q. When did you commence smoking?

A. Well, say 1890.

Q. Have you smoked ever since?

A. No, I have broke off a number of times.

Q. What do you smoke?

A. Smoke a pipe now, and for several months before that I smoked mostly cigars.

Q. Did you ever smoke cigarettes?

A. No.

Q. Are you a married man?

A. Not yet.

Q. Ever dissipate to any extent?

A. No, sir.

Q. Did you ever dissipate at all?

A. No, I don't think you would call it dissipation—I used to belong to the National Guards, but that was only what you might call excitement and strain.

Q. I mean by dissipation late hours at night.

A. Oh, yes.

Q. Run around with women?

A. No, sir,

Q. Not at all?

A. I have been out with them.

Q. You have run around a good deal, have you?

A. Yes, I have run around, but I can't call it dissipation exactly.

Q. You have been out with the boys at night, as it is called?

A. No, sir, not that is going around boozing and all that—I leave that part out—I have been around.

Q. You don't want to be accused of boozing?

A. That is what I meant when I said going with the National Guards, going around with some of them, but didn't booze with them.

Q. Did you ever have any trouble with your eyes?

A. No, sir.
Q. Your eyes are in good condition as far as you know?
A. Yes sir.
Q. Never wear glasses at all?
A. No.
Q. When was the last time you were examined by a physician, Mr. Corry?
A. When Mr. Weisenberg examined me last; I don't know what date that was.
Q. Has it been recently?
A. Yes, it may have been the 20th of September last.

BY MR. MILLER:

By Mr. Miller:
Q. Mr. Corry, if I correctly understood you, you first tasted coca-cola about 1897, but you didn't become a drinker of it until 1904?
A. Yes, sir, that is right.
Q. Now, your duties as a street railway conductor were the usual duties of a street railway conductor, were they not?
A. Yes sir.
Q. And when was that strike you were asked about on Cross-examination, about when?
A. That started about, I think, the 19th of February, I believe that was the date.
Q. Of this year?
A. Yes.
Q. And ended when?
A. Lasted nine weeks.
Q. You say it lasted nine weeks?
A. Yes, sir.
Q. How old is your father, Mr. Corry, about how old is he?
A. Sixty-two, I think.

Whereupon a recess was taken until two o'clock p. m. of the same day.

AFTER RECESS.

The Court met at 12:20 o'clock p. m., pursuant to the taking of recess.
Thereupon,

DR. WILLIAM F. BOOS,

of lawful age, was produced as a witness by and on behalf of the Government and having been first duly sworn, testified as follows:

DIRECT EXAMINATION.

By Mr. Miller:

Q. What is your profession, Doctor Boos?

A. I am chemist and pharmacologist at the Massachusetts General Hospital in Boston, and a physician with a consulting practice in internal medicine.

Q. What do you mean by "Internal Medicine," Doctor?

A. I mean that part of medicine which refers particularly to diseases inside of the body. It does not include such things as obstetrics, eye, ear, nose, throat, gynecology or diseases of women, or things of that sort.

Q. Where were you educated and graduated first in medicine?

A. I took a degree of A. B. at Harvard in 1894.

Q. Harvard University, at Boston?

A. Yes; and then I studied at the University of Heidelberg.

Q. In Germany?

A. In Germany.

Q. How many years?

A. Two years. I took the degree of Ph. D. in chemistry there, and I returned to America and was for one year assistant in the Department of Chemistry at Havard University. The next year I entered the Harvard Medical School, and in 1901 I took the degree of M. D. from the Harvard Medical School.

Q. That is Doctor of Medicine?

A. Doctor of Medicine. Then I entered the Massacheusetts General Hospital and served eighteen months as the House officer, or House Physisian, on one of the medical services.

Q. Did you take any further course in medicine?

A. Then right immediately after graduation I went to Europe to the University of Strassberg. For two years I worked in research in pharmacology, or the action of drugs, and the next two years I was assistant to the head of the institution, Professor Schmiedeberge, so that I was four years at the University of Strassberg.

Q. Prof. Schiedeberge is located where?

A. He is professor of Pharmacology at the University of Strassberg, Germany.

Q. State whether or not you have ever taught pharmacology?

A. I taught pharmacology at Strassberg. I taught, I had the instructing of the young men there, the young medical men who came for research in pharmacology. I instructed them in the methods of experimentation upon animals.

Q. What is pharmacology, Doctor? Explain to the jury in a brief way what it is.

A. Pharmacology is that science which has to do with the physiological or pharmacological action of drugs upon the animal system, the action of drugs. It is a part of physiological chemistry.

Q. And in that sense do you include man as an animal?

A. Yes, sir.

Q. And what do you mean by the term "physiological chemistry? Explain that.

A. Physiological chemistry is that branch of organic chemistry—that is to say, that branch of chemistry which has to do with substances containing carbon, which is primarly referred to the life processes which go on in the animal body. In other words, it is the chemistry of life.

Q. The chemistry of life?

A. Yes, sir.

Q. Now, after your return from your last visit and study in Germany, state whether or not you have had any connection with the Massachusetts State Board of Health or the hospitals there in Massachusetts?

A. I was called back to Massachusetts to undertake a research for the state Massachusetts Board of Health on the question of the cold storage of poultry, and I returned in the year 1906 to do that work.

Q. As a chemist, what has been your experience?

A. As a chemist?

Q. Yes, sir.

A. I worked in chemistry while an undergraduate of Harvard, taking all the courses they offered in instruction and one course in research before I went to Europe. Then, after my return from Europe, and after I entered the medical school, I was for a number of years, for two years, the consulting chemist of the American Printing Company in Fall River, so that I have some practical experience in commercial work. I have taught chemistry. I taught chemistry for five years in evening institutions, and of course experience in pharmacology is experience in chemistry. Besides that, at this present time I do all the medico legal work for the medical examiner in the Northern District of Suffolk County.

Q. Is Boston in Suffolk County?

A. Yes; and of course I have charge of all the chemical work which is done upon patients, and upon the products of the various food substances which are obtainable in the hospital for research in those lines of work,—physiological chemistry.

Q. In addition to that, state whether or not you have a

practice among—that is, whether or not you have patients of your own or whether or not you have a consulting practice aside from the duties that you have described which you now perform.

A. I have. I have a consulting practice in internal medicine in the city of Boston; that is to say, I do not act as a general practitioner, but see cases in consultation with other men and see cases which heve been referred to me by other men, and also those cases, of course, which come to me particularly in an office and consulting practice. One of my functions at the Massachsetts General Hospital is the introduction of new methods of drug treatment. That all pases through my hands now.

Q. When you say patients that are sent to you by other men, and other men that come to consult you, what kind of men do you mean?

A. Physicians.

Q. Men of what profession?

A. Physicians.

Q. Have you ever had occasion to experiment with Coca-Cola syrup as to its effect on animal life?

A. I have.

Q. From whom did you receive that Coca-Cola syrup?

A. I received it from the Department—from the Division of Drugs, Bureau of Chemistry; and I received it from Doctor Kebler. That is to say, the shipment was accompained by a letter from Doctor Kebler.

Q. Was that received by you from a department of the Bureau of Chemistry at Washington, D. C.?

A. Yes, sir.

Q. In what kind of a receptacle was that mixture contained?

A. It was in a five-pound—five-pint sealed bottle.

Q. And state the result of your experimentation in a brief but general way, to the jury, and the use of this Coca-Cola syrup that you thus received.

A. I employed as the experimental animal, frogs, the common frog which occurs in this part of the country as also in Massachusetts, namely the Rana Pipiens.

Mr. Hirsch: What is the name of that frog, please?

The Witness: The Rana Pipiens. Two words, R-a-n-a P-i-p-i-e-n-s, another word.

BY MR. MILLER:

Q. That is the technical scientific name of that frog that you experimented with?

A. Yes.

Q. You say that that frog is found in this section and

also in Massachusetts?

A. I believe it is.

Q. Well, you may proceed.

A. It is the common frog found throughout the United States. I gave this frog varying quantities of Coca-Cola syrup diluted with its own volume of water, and I found in this way the quantity, the minimum or smallest quantity, which was necessary to kill a frog. This quantity I found to be thirteen to fourteen hundredths of a milligram for every grain of the frog's weight. In the English system that would be thirteen six-thousandths of a grain to fourteen six-thousandths of a grain for every 15 grains of the frog's weight. This work was done, of course, with the metric system, because it is easier to handle for that sort of thing.

Q. State whether or not, in ascertaining the toxic effect of drugs, animal experimentation is resorted to.

A. It is the only means at our disposal, and all the advance in modern medication has been through that one channel.

Q. Why do you not resort to human experimentation as a rule?

A. Because as yet we are not allowed to use live persons for that purpose.

Q. What are the effects of caffeine, Doctor, on the frog or on humanity, either or both?

A. Would you like to have the effects on the frog?

Q. Give it on both.

A. In the frog, caffeine will produce a pronounced action upon the heart. The heart is slowed by caffeine, the tendency to systole or contraction of the heart becoming more pronounced, and in the course of time the heart is stopped if a sufficient dose has been given. The heart stops ins systole or contraction.

The frog also shows a decided tendency to increased irritabilty. That is to say, if a frog has been poisoned with caffeine, and, in any way, a mechanical insult is brought to bear upon that frog, he will have a tetanic convulsion the same sort of convulsion which you get in lockjaw. The best way to produce that is by simply striking the sub-stratum, we will say the plate upon which the frog is placed, with a pair of forceps or a pencil, and this shock will immediately produce in the frog a tetanic convulsion.

Q. You mean by that a spasm, what we ordinarily term a spasm?

A. A spasm, if you will, yes.

Q. If you were to take that frog before he has caffeine administered to him and strike the plate or other article

on which it is resting, before he has had the caffeine and then strike it after he has had the caffeine, if there would be any difference in the frog's action, tell what it would be.

A. The frog would pay absolutely no attention to the striking of the sub-stratum before the caffeine was given him. He would not move at all.

Q. What does that indicate or teach as respects the nervous system of the frog? What do you conclude from that as to the nervous irritability that is excited by the caffeine

A. It shows that caffeine acts directly upon the centers of the spinal cords, increasing the irritability of the cord and also stimulating the spinal cord to this increased re-action.

Q. What is the effect of the administration of caffeine to humanity?

A. In human beings there is also an effect upon the heart very similar to that in the frog. There is a slowing of the heart, a more pronounced systolic action. The caffeine also acts in the human being on the spinal cord, producing an increased irritability, an increased reflex irritability, so that little insults, as we may call them, occurring ordinarily, become magnified. The person becomes what we might call nervous, nervously irritated, and little things which ordinarily in his normal condition would not be apt to produce a re-action, render him unhappy under this condition. It also has an effect upon the centers of the brain, stimulating those centers to increased activity.

Q. Now, when those centers are stimulated to increased activity, what is the effect on the health of the person if that is continued steadily?

A. The effect on his health is a deleterious one, because this stimulation is carried out at the expense of the organism. You administer a drug which produces stimulation, but you administer nothing which supplies energy to this stimulation, so that the result is that the drug draws upon the reserve force, the reserve energy of the organism, the energy of the cells, and therefore to that extent impairs the organism. I would like to say that in the case of the frog, caffeine also has a very characteristic and pronounced action upon the muscles of the frog. This is produced not only when the muscle is exposed to it but whenever the substance is given the frog, sooner or later a condition is ine produces a condition which, under the microscope, canthe condition we speak of in animals after they are dead, the stffness afer death. It is called rigor mortis, and caffeine produces a condition which, under the microscope, can-

not be distinguished from rigor mortis. It does that, of course, also in animals of a higher order. In the human being it has the tendency to produce that condition.

Q. What is the effect of caffeine on the human system, or on the frog, as compared with that of strychnine?

A. It is not unlike that. There is a state, a time in this poisoning by caffeine when it would be impossible to distinguish between the poisoning by strychnine and the poisoning by caffeine. The picture would be the same. The action in some other respects is different but the action in producing an increased reflex irritability with these peculiar spasms is the same by both drugs.

Q. State whether or not you examined the urine to ascertain whether or not there was any abnormal constituent found in that as the result of the use of caffeine.

A. I have not personally so examined the urine, but the urine in cases of caffeine poisoning will show the presence of sugar.

Mr. Sizer: I object.

The Court: Do you state that of your own knowledge?

The Witness: Yes, sir; from my own knowledge, as derived from medical literature, the only way we can get it.

The Court: The exception is overruled.

BY MR. MILLER:

Q. What is the effect of that, Doctor, as respects the health of the consumer of caffeine?

A. The production of sugar in the urine or the viscera is decidedly deleterious to the organs.

Q. When a person takes caffeine, what is the effect of that contact between the caffeine and the body, and how is it thrown off, if at all, after it enters the body, or discharged, I should say, excreted?

A. Do you mean——

Q. The caffeine substance.

A. How does the body overcome the action of the caffeine?

Q. Yes, and is it assimulated, and if it is, how is it finally excreted or removed from the body?

A. The system attempts to overcome this deleterious or poisonous action on the part of the caffeine by trying to break up its chemical micro-organisms; that is to say, its chemical integrity, and the body succeeds in doing that to a certain extent, although some caffeine leaves the body in the urine, unchanged. A greater part of it is broken down into simpler chemical substances which belong to the same general chemical group as caffeine.

Q. State whether or not the effort of nature to break

up and throw off that caffeine is an effort that follows the introduction of any poisonous substance or various poisonous substances into the body.

A. Always. It requires an extra effort. It calls upon the reserve forces of the organism to bring about this reaction.

Q. State whether or not that increases the function of the organism; that is, the organs that assist to throw that off.

A. I would like to hear the question.

Q. I may not have made myself clear. I want to know whether of not that taxes or increases the tax that is made on the functions that assist to eliminate that poison from the system.

A. It does.

Q. And what is the effect of that on health?

A. It is decidedly deleterious. It weakens the resistance of the organs toward disease.

Q. You used the term "nerve force." What is meant by that, Doctor?

A. Our system is equipped to meet certain emergencies which may occur. That is to say, we are able to undergo a special exertion when it is called for, but of course only to a limited extent. That is to say, when a man, in order to meet the requirements of life, has to run for a distance he can do so, but only for a limited distance. So, also, he can do a certain amount of mental work, and he can do a great deal of mental work, but as he continues to do it he is constantly calling upon the reserve force of the organism, and the time will come when he will not be able any longer to do that mental or physical work because he will have exhausted the reserve energy which the system supplies him with.

Q. In what character of persons are the effects of caffeine most noticeable or observable?

A. In those people who by nature are more irritable than others, the so-called nervous people, or people with a tendency to nervousness, people with less stable temperaments. They are more particularly affected, of course, and more visibly affected by the action of caffeine, because their nervousness or tendency to nervous irritability is increased.

Q. What are the effects on the young, as compared with the robust persons of mature years?

A. Children should never be given drugs of any kind. It is a serious mistake ever to give children drugs, because they undoubtedly impair the functions of organs that are growing. These organs are just in the formative period,

and in many cases and in all cases the giving of drugs to children will undoubtedly interfere with the proper development of a child's functions which are being treated that way.

Q. Would or not the effects of administration of caffeine likely be more marked in a person of tender years or growing or young persons than one in mature years of life?

A. Yes, sir, it would.

Q. What is meant by the term matabollism?

A. Metabollism is a term which is employed to indicate the chemical changes which occur in the human body, particularly applied to the absorption, the combustion or burning up of the food in the organism and its excretion, or putting out of the body.

Q. Is there or not what is known as normal metabollism?

A. There is.

Q. State whether or not the administration of caffeine, or the use of it in doses of from nine-tenths of a grain to 1 and ¼ grains, administered in connection with the Coca Cola syrup, the components of which you heard Dr. Fuller give, would likely affect the normal or natural process of metabollism?

A. It would be likely to.

Q. Now, what would be the effect of that on the human health?

A. On the human?

Q. Yes? If you interfere with the normal metabollism?

A. It would be deleterious.

Q. And by that you mean detrimental?

A. Yes, harmful.

Q. Is caffeine administered as a drug, and if so for what purposes and what are its functions as a drug?

A. Caffeine is given in cases of heart disease as a stimulant for the heart and it is also given to stimulate the nervous system when such stimulation is necessary, and also as a stimulant for physical fatigue.

Q. Now, what other drugs, if any, are administered to stimulate the heart and nervous system just a few of them—instance just a few of them?

The Court: I do not see the materiality of that.

Mr. Miller: Only by way of showing the tocity of this drug is all.

The Court: You have shown it was used as a drug.

BY MR. MILLER:

Q. I will ask you to state what the effect of the adminis-

tration of caffeine is on the brain, if you know?

A. It causes a stimulation of the centers in the brain so that for the time being the person who is taking the drug is able to do more mental work than he was before he took the drug. It simply makes the activity of those cells more pronounced for the time being, the cells in the brain.

Q. Now, does any result follow that stimulation, and if so what?

A. That stimulation, as all stimulation of that kind, is followed by a compensating depression or fatigue; that stimulation calls upon the reserve force and when that has been caused then the organism is required to rest in order to recover from the loss of reserve force, and that recovering process is shown in fatigue.

Q. Now, what is the effect of that on human health?

A. I think it is deleterious.

Q. Now, you have stated that it was taken to stimulate the brain and increase or to increase mental activity. Is the work done under that stimulation at the expense of any other portion of the organism, and if so what?

A. Well, I don't think that I quite understand the question.

Q. I will ask Mr. Hacker to read you the question. (The question was re-read to the witness.)

A. Why yes, the work is done at the expense of energy derived from the organism itself, at the expense of the reserve energy.

Q. Is there in the administration of this caffeine any compesating energy or anything that goes to supply that which is expended?

A. Absolutely none.

Q. What effect, if any, does the administration of caffeine have on the tissues that form a part of the body or of which the body is composed?

A. I spoke of the effect that caffeine has of producing a condition which cannot be distinguished miscropically and also grossly from rigor mortis or the stiffening of the muscles after death.

Q. Now, what is the effect of that stiffening doctor? State whether or not it tends to produce arterio-sclerosis?

A. Yes, sir.

Q. Tell us of what that consists, or what is it?

A. It is the degenerating process occuring in the walls of the arterial system; it is a process which consists in degeneration, the replacement of muscle tissue by fat and the loss of elasticity which is essential to well being in these arteries; also a disposition of lime salts which render in time these arteries as rigid as the ordinary water pipes,

so you can crumble them right between your fingers at the autopsy.

Q. What is the effect of the administration of caffeine on the digestion taken in this Coca Cola syrup as the ingredients have been given to you by Dr. Fuller and the way it is usually served at fountains, and assuming that it is served at the times that Dr. Stewart and Dr. Kebler have stated?

Mr. Sizer: I object to his referring to the testimony of other witnesses in the case.

The Court: Yes.

BY MR. MILLER:

Q. Then, I will ask you, assuming that this mixture as given by Dr. Fuller, and as analyzed by him be served indiscriminately to young people and children, old and young, at the fountains in carbonated water ranging from six to eight ounces to the glass, during all the hours of the day and up to as late as ten or twelve o'clock at night, what would probably be the effect on the digestion?

A. A substance of this sort, such as Coca Cola, would have a great tendency to disturb the digestive functions.

Q. State why please sir?

A. The local action of its ingredients such as caffeine and the phosphoric acid would irritate the walls of the stomach and would in time tend to product hyperacidity and an increased secretion of acid in the stomach. Then the action of the caffeine on the nerve which controls the stomach to a certain extent the pneumo-gastric nerve. This constant action upon that nerve would have a tendency in time to disturb digestion or the digestive action of the organ.

Q. If that be disturbed what is the effect on the human system?

A. It would be harmful.

Q. You speak of the sub-stratum as supplied to the frog I understood you to say was the plate or whatever it might be setting on, that is what you meant by that term?

A. Yes sir, anything upon which the frog is sitting.

Q. Is caffeine a food in any sense?

A. No sir.

Mr. Miller: You may cross examine.

CROSS EXAMINATION,

BY MR. SIZER:

Q. I believe that you refer Dr. to Dr. Schmiedeberg, of Strassburg, as one of the persons under whom you studied?

A. I did.

Q. Is that gentleman a very eminent man in the scientific world?

Mr. Miller: I object to that, having one man pass on another.

Mr. Sizer: I think that is competent.

The Court: Is this doctor an expert who has testified by deposition?

Mr. Sizer: Yes, his deposition has been taken. He studied under him and knows his qualifications.

The Court: The objection is over-ruled. Let him state —

BY MR. SIZER:

Q. In the scientific world —

A. In the scientific world he is.

Q. In the scientific world?

A. In what particular branches of science?

The Court: Limit it to whether he is a man capable of giving an expert opinion —

Mr. Sizer: I am asking him in all branches.

The Court: Well, ask him whether this doctor is qualified as an expert to express an opinion on any given subject.

Mr. Sizer: Well I don't believe I care about asking it of him that way.

The Court: I do not think we will go into measuring the various degrees of qualifications.

BY MR. SIZER:

Q. Now, you say you received the sample of Coca Cola syrup from Dr. Kebler, which you analyzed?

A. Yes, sir.

Q. And about when was it that you got it?

A. I received it in October.

Q. You did analyze it?

A. It was analyzed by me.

A. How many different analyses did you make of it?

A. I made two.

Q. Now you say you fed some frogs with syrup?

A. I did not feed it to them in the ordinary sense —

Q. You did not feed it to them?

A. No, sir.

Q. How did you administer it to them?

A. I injected it into the anterior lymph sac.

Q. Now, just tell the jury what that means please?

A. The frog has a very loose skin and quite a cavity in front between his skin and abdominal organs and by put-

ting the point of a needle from the hypodermic syringe under his tongue you inject the material into his anterior lymph sac.

Q. As Coca Cola syrup?

A. Yes, sir.

Q. Why didn't you feed it to him, doctor?

A. Because it is a very difficult thing to feed frogs.

Q. The frogs don't like it?

A. They do not like to be fed anything and then it is a very difficult thing to do.

Q. And especially they would not like Coca Cola syrup would they take it into their stomachs?

A. Well, I can't speak for the frog.

Q. Now, doctor, the effect of any substance of that kind administered directly into the circulation or into the lymph sac —

A. Not directly into the circulation —

Q. (Continuing) Is it a fact the effect of that substance administered as you did administer it would be more potent than if taken in the stomach?

A. It would be more rapid, yes.

Q. How many of these frogs did you experiment on in that way?

A. About 25.

Q. Did you give them all the same quantity of Coca Cola?

A. Pardon me. I experimented perhaps on sixty or eighty frogs in all but the frogs that I spoke of that were killed with these doses were 25 in number. I experimented on about eighty or more frogs.

Q. And you administered the Coca Cola syrup to the frogs in the same way in each instance?

A. No, I administered it in a great many different ways.

Q. What other ways?

A. I prepared what we call a "window frog," that is by laying bare the frog's heart and then applied the drug or rather this mixture into the anterior and posterior lymph sac, that is the same way injected into the back under the skin to see how long it would take to stop the heart beating; I also gave it in various ways to study the occurence of the reflex irritability before I started in to determine the quantity of the material that would kill the frog.

Q. What other ways have you administered the Coca Cola syrup in addition to those two you have stated? That is, through the anterior and the posterior lymph sacs?

A. That is the only way I administered it.

Q. I understood you to say you administered the syrup

in various ways in order to determine certain effects?

A. That was a mistake — I meant I used other frogs to determine these other effects.

Q. In all the cases the syrup was administered either through the anterior or the posterior lymph sac?

A. Yes, sir.

Q. How much did you say you fed the frog before it would die in that way?

A. A dose of 13/100 and 14/100 of a milligram per gram of weight—of course frogs vary in size, and it will take much less to kill a little frog than a large frog, so you always have to give it according to size and weight of the frog.

Q. Doctor, state proportionately what quantity of Coca Cola syrup you would have to give a man in order to give the man the same amount that the frog would take?

A. It is impossible to do so.

A. Could you get somewhere near it?

A. No, I don't think I could, not at the present moment.

Q. Well, the fact is a man's stomach would not hold all that he would have to take in order to take the same amount or proportion to size?

A. No, sir, I think you are wrong; I think it would take it.

Q. It would take a considerable amount?

A. I think the stomach could very easily hold that and more.

Q. Have you no idea about what a man weighing 150 pounds would be, proportioned to his weight, as to the weight of a frog proportioned to the amount given?

A. I have no idea.

Q. You say that the effect of caffeine on the heart is to slow its action?

A. The effect of caffeine is to accelerate its action but caffeine also has its action on the vagus nerve which overcomes the accelerating action of the caffeine on the heart.

Q. Then in as much as it retards the effect on one nerve overcoming the accelerating effect on the other, this is no accelerating or retarding either way is that it?

A. There is usually acceleration.

Q. An acceleration?

A. Yes, sir.

Q. But the amount of acceleration depends on the amount given, is that true?

A. Yes, and upon the individual and the time it is given.

Q. There is a great difference in animals with respect

to the effect of caffeine?

A. Yes, sir.

Q. Did you ever conduct any experiments in administering caffeine to human beings or Coca Cola syrup to human beings?

A. I don't think such experiments are justifiable.

Q. I am not asking you whether they are justifiable but I am asking you whether you ever conducted any?

A. No, sir.

Q. Your use of caffeine has been by administering it to patients?

A. Yes, sir.

Q. You have never had any experience—but first I will ask you, that was to people who were sick and who require medical treatment?

A. Yes, sir.

Q. You have never had any experience at all in administering Coca Cola syrup?

A. I have taken it once myself but never since then.

Q. I am speaking of administering it to patients?

A. No, sir; I have not.

Q. You have had no experience in that?

A. No, sir.

Q. And you only took one dose yourself.

A. Yes, sir.

Q. Do you administer it often as a drug?

A. I do not.

Q. And when it is administered it is administered as a stimulant, is it?

A. A heart stimulant—that is what it has been given for in medicine.

Q. Well, it stimulates not only the heart but the brain and muscles?

A. Yes, sir.

Q. And it enables the brain to act better?

A. Yes, sir.

Q. It enables the muscles to act better?

A. For a short time.

Q. In other words, the direct effect of it is to enhance the normal action of the organ?

A. You can't enhance the normal action of the organ or of any organ.

Q. Well, you say it makes them act better?

A. You can't improve that.

Q. If you make them act better by taking a little caffeine does that improve its action?

A. Well, provided you do not have to pay for it afterwards.

Q. The ultimate effect I say is to—I mean the immediate effect is to improve the action of the function of the organ?

A. Perhaps so.

Q. That is true?

A. Yes, sir.

Q. And the question of whether any subsequent depression follows depends on whether you take too much of that stimulation, is that true?

A. No, I think that a drug like caffeine will have a tendency to produce its stimulation and its fatigue which is consequent upon that stimulation in the smallest dose.

Q. You say that is true?

A. You may not know the effect but the effect will be there just the same.

Q. In other words, every time a man takes a cup of coffee it is your opinion there is depression following from that?

A. Yes, sir.

Q. And the resulting deleterious effect?

A. Yes, sir; it may be slight but it is there.

Q. Now, how do you know that? Is that theory based on any experience?

A. It is based on the fact that caffeine always acts as caffeine no matter how you take it, and any drugs that contains caffeine, if you take it, you will get the action of caffeine.

Q. Do you know that caffeine at all times and in all doses does result in depression?

A. Yes, sir.

Q. How do you know that?

A. By experience, and —

Q. Personal experience —

Mr. Miller: Let him answer.

The Witness: And by study of the literature.

BY MR. SIZER:

Q. Is there any medical work, doctor, that says that that the use of caffeine always results in depression?

A. I think so.

Q. Where, what work is that?

A. I think practically all of them say it.

Q. Just give me one?

A. Why Dr. Schmiedeberg that you referred to, or having been quoting, says it.

Q. Let us have that work of Dr. Schmiedeberg. Have you got it?

A. No sir.

Q. Well, give us some American work?

A. I am not familiar with the American works.

Q. You don't know of any work except that of Schmiedeberg and that is not accessible which says the use of caffeine is always followed by depression?

A. I think Kobert says it.

Mr. Miller: We have that work and don't wish to have it stated that it is not here —

Mr. Sizer: I am asking the witness now.

BY MR. SIZER:

Q. What was your other work?

A. Kobert, you have it.

Q. Does he say that the use of caffeine in any quantity is always followed by depression?

A. I think so. May I explain?

Q. No, I asked you that question —

The Court: The witness may make any explanation after answering.

The Witness: May I explain? It is not necessary to state that depression follows stimulation because that follows stimulation as the sunset follows the dawn in every single case.

BY MR. SIZER:

Q. Now, I didn't ask you to argue that question at all. I simply asked you whether any medical authority that you were aware of —

A. Yes sir.

Q. That says that the use of caffeine in any quantity is always followed by depression?

A. Yes, I think every medical authority that writes on the subject will make that statement.

Q. Is it true that the use of caffeine in moderate quantities is not followed by depression?

A. I don't know that—I don't see how it is possible.

Q. Are you familiar with a work by Torwald Sollmann, a text book of Pharmacology and some Allied Science.

A. I have heard of it.

Q. Is that considered as a good authority?

A. I don't know.

Q. Well, it is a book that is very commonly used in this country is it?

A. I would have to take the opinion of other men; I have not used it.

Q. Well, according to opinions of other men it is a good authority?

A. I don't know.

Q. I will ask you if Dr. Sollmann says that caffeine in moderate doses does not seem to become noxious with habitual use, is that correct or not?

A. I think that is incorrect absolutely.

Q. Well, suppose he says also the effect of caffeine is never prolonged but it not followed by depression?

A. I don't think that is correct.

Mr. Miller: No foundation for the hypothetical question in the first place, and it is entirely irrelevant and I object to that.

The Court: I understand it is offered on cross examination to contradict the opinion of the witness expressed on direct examination.

Mr. Miller: It has not been shown that Dr. Sollmann says that is so, and not proven whether he is an authority or not.

The Court: I assume counsel read from the book.

Mr. Sizer: I have the book here, at page 178.

Mr. Miller: He is not present here, and I do not understand he is to be called.

Mr. Sizer: It is well settled that I have a right to read from medical authorities and ask the witness whether he agrees with such and such statements.

The Court: The objection is over-ruled.

Mr. Miller: He has not proved it is a reputable book.

The Court: I think until you prove by some one it is a reputable authority—he says he don't know about; when you prove that you may ask the witness about it.

BY MR. SIZER:

Q. Do you know of a work by Richard R. Cusshny, entitled a Text Book of Pharmacology & Therapeutics?

A. Yes, sir.

Q. Is that a good authority?

A. Yes, sir.

Q. Now, Doctor, if Mr. Cusshny says on page 245 "if the quantity of caffeine taken ingested is small the results are a distinct benefit to intellectual work and capacity for physical exercise also is augmented" is that true?

A. Yes, sir.

The Court: That does not contradict him—limit the matters to purpose of contradicing the witness.

BY MR. SIZER:

Q. Are you familiar with Potter on Materia Medica?

A. No, sir.

Q. Do you know anything of the reputation of that book?

A. I don't know anything about it.
Q. You never heard of it?
A. I have heard of it in this trial.
Q. You don't know whether it is a good authority or not?
A. I don't know.
Q. Did you testify in your examination in chief, Doctor, that caffeine has an injurious effect on the stomach?
A. I did so testify.
Q. Now then, isn't it true that a great many authorities say it is used as a stomach tonic?
A. I am not aware of that fact.
Q. Do you know Barthlomen's work on Materia Medica?
A. No, sir.
Q. You don't know whether that is a good authority or not?
A. No, sir.
Q. Do you know a work by George S. Butler entitled a text book of Materia Medica and Pharmacology and Therapeutics?
A. I have seen that book and I have also used it on one or two occasions, but am very unfamiliar with it.
Q. If you used it it was a good authority?
A. I couldn't find what I wanted in it.
Q. Do you consider it a standard medical authority?
A. No, sir, I do not.
Q. Now, Doctor, in addition to the caffeine that is in the Coca Cola syrup would not those other ingredients all be injurious to a frog?
A. Will you name them please so I may know?
Q. Sugar?
A. Yes.
Q. Phosphoric acid?
A. Sugar? To a certain extent I found it was not.
Q. Phosproric acid?
A. Yes, sir.
Q. And both of them would be injurious to a frog?
A. Yes, sir.
Q. You say yes?
A. But that would not kill the frogs in the doses in which they were administered, the Coca Cola syrup.
Q. How do you know, did you try that?
A. Yes, sir.
Q. Supopse you would inject milk —
A. (Interrupting) I didn't try it with phosphoric acid. I didn't know it was contained in the Coca Cola syrup. I tried it with the syrup.

Q. That was the pure sugar syrup?
A. Yes, sir.
Q. You didn't try it with the phosphoric acid?
A. No, sir.
Q. And you don't know whether the phosphoric acid would kill them or not?
A. I don't think it would kill them because a stronger acid than that was taken by a frog without killing the frog.
Q. At any rate you do know that it would produce a deleterious effect on the frog?
A. Yes, sir.

BY THE COURT:

Q. Now, when you say you killed the frog what do you mean by that? How many doses did you give the frog?
A. One.
Q. Kill the frog instantly with one dose?
A. No, sir, the frog died in the course of time, maybe a half to an hour.
Q. Within an hour or two?
A. Yes, it depended upon the rate of absoption.

BY MR. SIZER:

Q. Do you now take the position that all kinds of stimulants are injurious?
A. I do.
Q. And a man has no business to be stimulated at all?
A. I think so.
Q. Well now, it is a fact that practically all life is stimulation?
A. Not drug stimulation.
Q. I don't ask you about drug stimulation, I ask you about stimulation generally?
A. I think you misuse the term.
Q. Does not food stimulate your stomach?
A. Yes, but food gives you energy that is necessary.
Q. But it stimulates, does it?
A. Well, not in the way that a drug stimulates, that is a misuse of the term "stimulation."
Q. What about education, is that stimulation to the mind?
A. Why I think you use —
The Court: (Interrupting) That is a play on words.

BY MR. SIZER:

Q. I wanted to get his idea of what he thinks. Then you make a distinction?

A. Yes, as I am using it.

Q. And the extent of the stimulation depends on the amount of drug you take?

A. Yes, sir.

Q. Isn't a fact that thousands of people, and millions of people, take caffeine in the form of a beverage without any appreciable deleterious result?

A. I would not agree with that. I think the result is appreciable in a great many cases; I do not think that thousands take it without appreciable result.

Q. In the majority of cases of people who take caffeine in the form of a beverage is it true there is no appreciable deleterious result?

A. No, I can't quite agree with you.

Q. Can you say there is a deleterious result following, an appreciable deleterious results following in the majority of the cases of those who use caffeine as a beverage? I mean caffeine in a beverage?

A. I think so.

Mr. Miller: I object to that. I submit that we are trying it served as a beverage, as a soft drink—I submit we are entitled to have counsel to limit his question to one beverage or the other, beverage is general, and I simply wish to have a limitation on it.

The Court: If the witness wants to make a limit—he can in answering.

The Witness: Will you stipulate which beverage you refer to?

BY MR. SIZER:

Q. I do not want to put it that way —

A. It all depends on the man as to the appreciable results—on the amount —

Q. I mean the results you can appreciate, Doctor.

A. In that case I would answer your question in the negative.

Q. And in the majority of the cases you have observed of persons who use caffeine containing beverages there are no deleterious effects you can appreciate?

A. I mean to say the other way, there are deleterious results.

Q. Do you mean the most of people whom you have observed who used caffeine in beverages regardless of the quantity have experienced deleterious results that you can appreciate?

A. Yes, sir, I think so.

Q. That is your opinion now as a medical man and expert?

A. Yes, sir.

Q. You don't use it personally, I suppose?
A. Yes, sir, I have used coffee occasionally.
Q. You don't use it regularly?
A. No, sir, I do not.
Q. Do you use any caffeine containing beverage?
A. Not besides coffee.
Q. Do you use chocolate?
A. Yes, oh yes—that contains a trace of caffeine but that caffeine is negligable.
Q. Does chocolate contain about 28/100 of one per cent. of caffeine?
A. I don't know—I didn't know until today.
Q. Do you know it does?
A. No, sir.
Q. You never analyzed it?
A. No, sir.
Q. Well if it does contain 28/100 of one per cent. then it contains more caffeine than this Coca Cola syrup you analyzed don't it?
The Court: We will not go into that.

BY MR. SIZER:

Q. Do you know how much caffeine the cocoa nibs contain?
A. Do you mean the coca leaves?
Q. No, the cocoa nibs?
A. No, sir, I do not.
Q. You say that the use of caffeine results in increase of sugar in the urine?
A. Yes, sir.
Q. In all cases?
Q. That I am not prepared to answer, or to say: I am speaking of experimental work when I say that.
Q. You say you have done experimental work?
A. No, sir, I spoke or experimental work when I said that.
Q. Where do you get that from?
A. There are three authors who have worked on the subject, Rose, Jacobi and Salant.
Q. What amount of coffee do they say you would have to take in order to increase the amount of sugar in the urine?
A. I think a single dose of 70 milligrams of caffeine has produced sugar in the urine of the rabbit.
Q. How much is that reduced to grains?
A. A milligram is sixty— or sixty milligrams to the grain. I am very slow at reducing those figures.
Q. How much of a dose would that be for a man, giving

the man the amount proportioned to his weight as seventy milligrams is proportioned to the rabbit's' weight?

A. I can't do it that way.

Q. But I want you to do it that way.

A. It would not be correct.

Q. I am not asking you whether it is correct or not—just give me how much caffeine that you would have to give to a man in order to give to the man that amount to his weight as seventy milligrams to the rabbit's weight?

A. I have not opportunity to do mathematical work.

Q. Can't you tell approximately how much that would be?

A. No, sir.

Q. Well, rabbits weight about four or five pounds.

A. Rabbit will weight four pounds on an average.

Q. And the average weight of a man is generally taken at 150 pounds?

A. Yes, sir.

Q. Something more than thirty times the weight of the rabbit?

A. Yes, sir.

Q. Now, what is a milligram in order that the jury may understand, what is the difference between the metric system and the system we use here?

A. 65 milligrams to a grain.

Q. And seventy milligrams be a little over a grain?

A. Yes, sir.

Q. So, in order as to proportion it by weight a man being given the same amount as the rabbit would get thirty to forty grains?

A. As I say if it was allowable—but it is not allowable—may I explain?

Q. I am asking you a hypothetical question and ask you to figure it out and tell us how much?

A. Yes, but may I explain?

Q. What amount of coffeine would be proportioned to a man's weight as 70 milligrams to the rabbit, that would be thirty or forty grains?

A. Yes, sir. May I explain? You can't always carry proportion, you cannot carry proportion to produce certain results—the therapeutic dose —

Mr. Sizer: (Interrupting) I object to any explanation.

The Court: I think he has a right to explain it.

The Witness: I was going to use as an example a well known drug to show that you cannot possibly —

Mr. Sizer: Well, just state —

The Witness: A therapeutical dose of digitalis for the human being is an amount that will kill eight frogs.

BY MR. SIZER:

Q. These experiments, Doctor, on animals with certain drugs are of very little value in determining the effect on humans?

A. Oh no, they are of great value, but you have to find out whether that animal has greater or less resistance in the particular instance.

Q. What did you find out with respect to the comparative resistance of rabbits and men to caffeine?

A. I have never experimented on that subject.

Q. Or between frogs and men?

A. I have not compared the two.

Q. In these experiments of Dr. Rose, Jacobi and Salant in which you say they found an increase of sugar in the urine resulting from certain dose of caffeine, did they use the caffeine itself are the salt of caffeine?

A. That I cannot say now.

Q. Did that make any difference in the result?

A. It would make a difference if they used citrate of caffeine—70 milligrams of citrate caeffine would be only 35 milligrams of caffeine, if that is what you mean.

Q. Would it make any difference in action?

A. Would not make any difference in action.

Q. Suppose they used caffeine salicylate, would that make any difference?

A. Simply in the size of the dose of the salicylate which makes up a good part of the molecule and there would be less caffeine in the substance.

Q. There would be no difference in result, however?

A. No, sir.

A. And do you know what dose they used in order to determine the amount of sugar in the urine?

A. No, sir.

Q. Where did you get the report of these cases—from the work of these men?

A. I received a report of these cases from Dr. Salant.

Q. Did you get the report of the Rose case for instance?

A. No, sir, not the original report.

Q. You didn't see that?

A. No, sir.

Q. Did Dr. Salant tell you that?

Q. No, sir.

Q. Dr. Salant told you about it?

A. I have read Rose's work, but not recently.

Q. And you don't recall what he said about this particular case?

A. I do not.

Q. Did you see Jacobi's report of his case or did Dr.

Salant tell you?

A. I knew of Jacobi's work on the subject before Dr. Salant told me but I don't recollect the details of that.

BY THE COURT:

Q. How many germs were in the dose you gave? I mean to the frogs?

A. How many germs?

Q. Yes, what was the actual amount, you stated on a comparative basis the amount per gram, or the milligrams per gram of weight.

A. I think the average weight would be thirty grams, and you would multiply that dose by thirty; some weighed 25 and some weighed 40 and some weighed 45, and some more than the average weight, taking frogs as they come along, is about 30 grams; that would have to be multiplied by thirty.

Q. Well, how much?

A. Well, between 13 and 14 6/1000 of a grain per gram and you would have to multiply that by thirty to get the amount for the average frog.

Q. 14 6/1000 of a grain?

A. Yes, sir.

BY MR. SIZER:

Q. Doctor,in these experiments of Jacobi about which you have been testifying suppose he administered salicylate of caffeine and then used the trommer test in order to test the presence of the sugar in the urine?

A. Yes, sir, that is a good test.

Q. Would that be the normal test under those conditions?

A. Not necessarily, no.

Q. It would not?

A. No, sir, there might be other reducing substances present.

Q. What did you say the effect of caffeine was on the tissues?

A. On the muscles.

Q. Does it have any effect on the tissues?

A. I don't know of any; tissue is a very indistinct or indefinite term. Muscles are tissues.

Q. Then, on the muscles, what did you find on the muscles?

A. Caffeine in dilution of one part to 4000 applied to the frog's muscle coagulated it like boiling water.

Q. That is applied to the muscle?

A. Well, apply it to any muscle.

Q. Do you ever apply it to any muscle?

A. Well, to the frog —

Q. That is only when it is applied directly to the muscle?

A. Yes, sir.

Q. And not through the stomach?

A. No, sir.

Q. Now, you have expressed the opinion I believe that children should never be allowed to take drugs or anything containing drugs?

A. I did.

Q. Do you say that?

A. Yes, sir.

Q. Well, chocolate you know contains a drug, does it not?

A. Yes, sir.

Q. Chocolate and cocoa?

A. Yes, sir.

Q. And theobromine and caffeine in chocolate?

A. Yes, sir.

Q. Your opinion then is that chocolate should be positively forbidden children?

The Court: That is immaterial.

Mr. Sizer: Well, he expressed an opinion on that matter.

The Court: Well.

Mr. Sizer: We ask to exclude his answer given on his examination in chief in reference to chocolate.

The Court: I exclude it, it is immaterial either way.

Mr. Sizer: I wanted to let it go in.

The Court: You moved to exclude it.

Mr. Sizer: If your Honor will let me ask about it, but if your Honor does not I move then to exclude it.

The Court: I have excluded it.

BY MR. SIZER:

Q. Do you state in your examination that the use of caffeine would produce arterior scerosis?

A. I did.

Q. And on what do you base that statement?

A. On the experimental work which was performed by Leo Leob.

Q. Have you that work with you?

A. No, I can give you the reference.

Q. And it is solely now upon some reference reported by him that you make that statement?

A. Yes; entirely.

Q. Do any other medical works advance any such theory?

A. That is a very recent work.

Q. I say do any other medical works advance that theory?

A. None that I know of.

Q. On whom were those experiments reported by him — were the experiments conducted with human beings or animals?

A. Rabbits.

Q. And what size doses did he give them?

A. I can't tell you that now.

Q. Did he draw that conclusion, Doctor, from the fact that when caffeine is applied to the naked muscle it results in contraction somewhat like rigor mortis?

A. I think not.

Q. What was the experiment that he performed?

A. I think he injected a mixture of caffeine and adrenaline into the circulation.

Q. What is that?

A. Adrenaline is a substance derived from the adrenaline gland.

Q. Are you prepared to say which one of these two substances would contribute most to arteric sclerosis?

A. Adrenaline will do it.

Q. Will caffeine also do it?

A. I don't know.

Q. Are rabbits peculiarly susceptible to arteric sclerosis?

A. I am not aware of that fact.

Q. You are not aware that they often have it?

A. No, I am not.

Q. Referring again to this frog now which you made this injection of caffeine in, is it true a great many substances that are harmless when taken into the stomach are nevertheless very deleterious when introduced into the circulation?

A. Yes, there are some substances.

Q. For instance, milk introduced into the circulation is very injurious?

A. No sir, a small quantity of milk, it is not.

Q. It has a deleterious tendency?

A. Not a single injection.

Q. How many injections would you make?

A. You are now coming to the reaction which has nothing to do with drugs or chemistry.

Q. Well, just answer that question, much or little?

A. Can I be allowed to explain?

The Court: Yes.

BY MR. SIZER:

Q. How much milk could you introduce into the circulation direct without producing a deleterious result?

A. I don't know; I never tried it.

Q. You never experimented with it?

A. No sir.

The Court: Make any explanation that you wish to.

Mr. Sizer: He says that he never tried it.

The Court: Well he can make any explanation he wishes to.

The Witness: I think what you have reference to is the serum effect which has nothing to do with the action of drugs—the thing has to be considered by itself, of which we do not know the cause in any way ——

BY MR. SIZER:

Q. (Interrupting) Give us the citation to that work you referred to while ago Loeb ——

A. American Journal of Biological Chemistry 1910.

Q. Could you give the page?

A. No sir, I could not.

Q. You say that caffeine is not a food in any sense?

A. I do.

Q. How do you know that Doctor?

A. It does not produce in any sense any of the results that we expect from food; it does not replace tissue waste; it is an energy producer; it never produces or replaces tissue waste.

Q. Caffeine is what is known as trimethyl xanthine?

A. Yes sir.

Q. And it is known to be broken up in the body into —

A. (Interrupting) Yes.

Q. Dimethyl?

A. Yes sir.

Q. And finally broken up in xanthine?

A. Yes sir.

Q. And xanthine is one of the normal constituents of the body?

A. No sir.

Q. Is it found in the tissues?

A. No sir.

Q. Are there any xanthine derivatives found in the body?

A. No sir

Q. Then xanthine is not a normal constituent of the body?

A. No sir, it is not itself.

Q. Is it or not true that xanthine is oxidized to urea?

A. I think that is a debated question, I think not.

Q. Some authorities hold that it is?

A. I have heard it; I read in a deposition that it was but I don't think that it is.

Q. Well, do you profess to know whether that is so?

A. Yes sir, I think I have authority, in the human body it is not.

Q. You have read authorities to that effect—have you conducted any experiments along that line?

A. No, sir.

Q. What authorities have you that say xanthine is not found in the body?

A. I am referring to a work by Shittenhelm.

Gen. Cox: We submit the question of whether xanthine is in the human body has nothing to do with whether Coca Cola is an added ingredient or deleterious to health.

The Court: I understand the contention is xanthine is one of the basis of caffeine.

Gen. Cox: No xanthine in Coca Cola.

The Court: I over-rule the exception.

BY MR. SIZER:

Q. Doctor is it a fact that xanthine is found in the muscles of the human body?

A. Yes, it may be found there. You asked me if it was a normal constituent of the human body.

Q. How does it get there?

A. It is a waste product in the body being eliminated by the human body. It results from the burning up of nuclein bodies.

Q. In what part of the body are these nucleins found?

A. The nucleins?

Q. Yes.

A. They are found pretty well all through the body, particularly in the structure which we call nuclei, that is that part of the animal cell which has to do with governing the life processes of the cell.

Q. Isn't it further true that it is entirely the result of the exercises of the muscle that xanthine is produced?

A. Yes sir, I think so.

RE-EXAMINATION.

BY MR. MILLER:

Q. Dr. Boos, why is it that the body eliminates these xanthine substances?

A. Because poisonous to the body.
Q. Because it is poisonous to the body?
A. Yes, sir.
Q. And you say that is one of the constituents of caffeine?
A. Xanthine?
Q. Yes.
A. No. That is not one of them.
Q. Is it related in any way to the group?
A. It is related to caffeine—xanthine, if you will, is the mother substance of caffeine, caffeine being trimenthyl xanthine.
Q. Now then, if the xanthines were not eliminated from the body what would be the result?
A. Xanthine poisoning.
Q. State whether or not those xanthines or poisonous substances are produced by the taking of caffeine in the body?
A. I do not think it is.
Q. State whether or not in your opinion the administration of caffeine and the consumption of it will produce arterio-sclerosis?
A. I think it will.
Q. As to the administration of caffeine whether it be administrated through the stomach or the lymph sac or how, tell us the difference both as to potency and ulimate effect.
A. In the case of caffeine the difference is simply one of time and degree. If it is given into the stomach it will be taken up very slowly and a smaller amout will be absorbed at a given time—a smaller amount will circulate in the blood where it exerts its action, and it will come on more gradually and some of it will probably be excreted before the rest is absorbed, and in that way you get a milder action than from the application hypodermically or directly into the blood. The lymph sac injection or introduction stands between the injection into the circulation and giving it into the stomach.
Q. Now suppose you take a dose of caffeine consisting of 9/10ths of a grain to 1 1/4 grains; in the course of two or three hours another like dose is taken in a soft drink the way that Coca Cola is administered and then during the afternoon one or more doses are taken, what will likely be the effect on the human health?
A. Harmful, I would say.
Q. It would have a harmful effect?
A. Yes, sir.
Q. Now, you used the term "reflex irritability" on cross-

examination. What did you mean by that, in the common acceptation of the term, Nervousness?

A. Yes, nervousness.

Q. And why do you call that reflex irritability instead of nervousness?

A. Shall I explain?

Q. Yes. Explain how that is.

A. There are certain actions that are carried out by the nervous system, by portions of the nervous system, which are carried out independent of our consciousness. If you were asleep and somebody were to jab you with a pin, not strongly enough to wake you up, but still enough to hurt a bit, you will draw your hand away without waking up, and that action would be carried out without the brain by your reflex nervous system, which is the spinal cord—I mean to say that it would be carried out without the brain having anything to do with it. All of these actions which are carried out by the spinal cord without the use of the brain or without the aid of the brain, are called reflex actions. The same thing, if you hear a cannon shot, you might jump, perhaps and not realize the fact. That action is carried out without the use of the brain. Now, these actions are increased under the use of caffeine—small things which would not ordinarily make a man jump would make him jump under these conditions.

Q. State whether or not in your opinion the administration of caffeine in Coca Cola—that is where the commercial caffeine is taken and put into the product and the administration of caffeine in such beverages as coffee or tea, prepared by nature, mixed with other ingredients, would be as injurious.

A. I think not.

Q. Which would be the more potent and have the more harmful effect?

A. That beverage in which the caffeine had been added in the pure form.

Q. Now, I will get you to state if you are acquainted with any standard authors or medical writers who advocate the use of caffeine by humanity?

A. I can't think of any.

Q. State whether or not as a rule animals are more tolerant to drugs, or to caffeine, I should say, than man pound for pound of body weight.

A. I think that rabbits are more tolerant than man because it is a plant product, and in general rabbits are more tolerant to those substances which are found in the plants.

Q. What do you mean by the word "tolerant" in that

connection?

A. That is to say, it requires a larger amount compared to the body weight of the animal to produce its toxic results, of that substance.

RE-CROSS EXAMINATION.

BY MR. SIZER:

Q. You say that rabbits are more tolerant to caffeine than human beings?

A. I believe so.

Q. Do you have any experience or authority on which to base that statement, or is it mere belief?

A. It is belief.

Q. And nothing more?

A. I think I have read it but at this moment I could not give you any reference to that statement.

Q. Some man has published a statement then to the effect that rabbits are more tolerant of caffeine than human beings?

A. Yes, I think so.

Q. Well, isn't it a fact that a rabbit was never known to eat any caffeine-bearing substances?

A. Yes, of course that is known.

Q. Well, isn't it a fact that human beings, the ancestors of human beings, for hundred of years past, have consumed caffeine-bearing substances in vast quantities?

A. Yes, sir.

Q. Would not that fact tend to create a tolerance in human beings for caffeine?

A. No, sir.

Q. Well, why not?

A. Well, because—what do you mean by tolerance?

Q. You used the word—what do you mean by it?

A. I don't mean what you do. I mean resistance.

Q. Well, how do you know what I meant?

A. I meant the same resistance, not tolerance.

Q. Oh, yes, resistance instead of tolerance. Isn't it a fact that if a man is accustomed through inheriting and his ancestors have been for many centuries of time using certain substances, that he himself can use more of that substance than if he and his ancestors had not been accustomed to it, without any deleterious result?

A. You say without any deleterious result?

Q. Yes.

A. No, I say it is not possible.

Q. It is not possible?

A. No.

Q. He would have no increase in the power of resistance?

A. No, the resistance would be steadily diminished by the use of it.

Q. Then a man accustomed to taking tea and coffee could not take it without any injurious effect any more readily than any one who has not been accustomed to it?

A. I think so —

Q. (Interrupting) In other words, the fact that he has been accustomed to taking —

A. I don't quite understand it—may I repeat it and ask you whether a person who was not in the habit of taking tea and coffee could take it as readily as a person who was in the habit of it?

Q. Yes. Will he be affected by it more readily than one who is accustomed to taking it?

A. I think in one the effect would be more apparent —

Q. You know nothing about what effect it produces unless there is some appearance of it, do you?

A. You can tell by a person's general health.

Q. You believe now that there would be no difference in the effect of taking of a cup of coffee, for instance, whether it was taken by a man accustomed to it or not?

A. The action would be the same but the effect would be greater in the person who was drinking it than in the person who took it for the first time.

Q. What is the distinction between the action of it and effect?

A. A certain amount of a drug will produce a certain amount of action but the result on the individual will depend on that individual. If it has been lowered by the constant use of tea and coffee, the action will be more serious.

Q. How do you know what the result of a cup of coffee would be on a man who is accustomed to it?

A. It is very hard to measure it.

Q. Well, it is not apparent at all, is it?

A. It could be measured, yes.

Q. Well, it is apparent only in the fact that a slight stimulation results from it, is that true?

A. Well, it is followed by depression.

Q. In all cases is it followed by depression?

A. Yes.

Q. And now, you mean to state as an expert on that matter that in all cases where a single cup of coffee is taken, depression follows from the stimulation?

A. I do.

Q. Now, you say that caffeine is contained in Coca Cola

in the pure form. Is it contained in the coffee in pure form?

A. No, sir.

Q. How is it found in coffee—I mean, in the infusion of coffee or beverage as it is drunk?

A. May I have that question again?

Mr. Sizer: I will ask Mr. Hacker to read you that question.

(The question was read to the witness.)

A. I can't answer that question that way. No drug is contained in the pure form in the original substance in which it is found. The pure form is the isolated drug.

BY MR. SIZER:

Q. Well, you don't have it in the pure form in Coca Cola?

A. Yes, sir.

Q. It is not isolated in Coca Cola.

A. But Coca Cola is not the crude form it occurs in.

Q. Well, I did't ask you that. I asked you if it is not a fact that pure caffeine appears in coffee as it is drunk.

A. No, sir.

Q. That is not a fact?

A. No, sir.

Q. Free caffeine?

A. Ah, that is different, to a certain extent the caffeine is free.

Q. How much free?

A. I don't know.

Q. Isn't it a fact that it is practically all free in the form in which it is taken?

A. Practically all free.

Q. And in the bean before it is roasted the caffeine is combined with something else?

A. Yes, sir.

Q. So that when you go to prepare coffee for taking it and consuming it, you take the roasted bean and thereby alter the form in which it is originally found, that is, the form in which the caffeine originally appears?

A. Possibly; I don't know.

Q. Well, don't you know that is true—that by roasting you change the caffeine from the combined form in which it exists into a free form?

A. I admit caffeine is free in coffee as it is drunk.

Q. Now, what other substances in coffee that are supposed to produce deleterious effects are there if the coffee is taken to excess?

A. Not to my knowledge—

Q. Well, the empyreumatic oils?

A. I think there is no serious result —

Q. (Interrupting) Do you know or are you prepared to say whether that substance produces any deleterious result or not?

A. I have never heard of any.

Q. Do you know what proportion of that empyreumatic oil or caffeine is found in coffee?

A. I do not.

Q. Is it a stimulant?

A. Reflexly, yes.

Q. And of course if too much of it is taken, more stimulation will result from the use of it, the same as will result from the use of any other stimulant?

A. If you take barrels of it, yes.

Q. How?

A. I say, if you take enormous quantities, yes.

Thereupon, at 2:05 o'clock P. M., the Court adjourned until nine o'clock A. M., Friday, March 17, 1911.

CHATTANOOGA, TENNESSEE,
FRIDAY, MARCH 17, 1911.
NINE O'CLOCK, A. M.

The Court met pursuant to adjournment. Appearances, the same as on yesterday.

PLAINTIFF'S EVIDENCE CONTINUED.

Mr. Miller: In order that we may not be charged with laches—on yesterday, on direct examination of Dr. Kebler, after Dr. Kebler had been asked to enumerate authorities that sustained a certain position, as I recall now, this was the habit-forming drug—but the principle is the same, on re-direct examination, he was not permitted to make further research or produce further authorities on the subject. I took occasion last evening to go over the authorities on the subject, and I do not wish to take up the time now to possess them, but I give notice now that I will ask your Honor to hear me on that point before the trial closes.

The Court: Yes, and you can put Dr. Kebler back on the stand.

Mr. Miller: Yes, he will be here later, and I will submit the authorities to the Doctor.

The Court: You might let me have a memorandum of the authorities if you have any..

Mr. Miller: I will be glad to pass them to counsel —

The Court: I would be glad if cousel on each side would as soon as it is convenient to do so, present me with a mem-

orandum of any propositions of law out of the ordinary run, with the authorities on which they expect to rely in this case, with a memorandum of their authorities, so that I may study the question. I would be glad to get them as early as I can.. I do not mean any elaborate brief at all, just a list of the propositions and the authorities..

Mr. Sizer: As far as I know, I don't think there will be any legal propositions in the case, except those arising out of the construction of the Act.

The Court: If there are any cases construing the Act in any manner material in this case, I would be glad to have references to them.

Mr. Miller: We will have references in that respect, and will submit them and exchange with adverse counsel, and will be glad to do so tomorrow afternoon, as we think we can do it then.

The Court: In reference to the use of text books in the examination of witnesses, I have made some investigations since yesterday on that. I find there is some divergence of authorities, but on the whole, I am inclined this ruling is sounder and better ruling and the better authorities, namely: That where an expert given an opinion as to a scientific fact based merely on his own experience, any reading of text books or authorities to him on cross examination is not competent, but where it develops or appears there is on his statement that his opinion on scientific facts is based in whole or in part from his reading of the authorities and is in whole or in part an expression of his view as to the general holding among scientific men on that question, then it is competent to call his attention to the scientific authorities and ask him if they are recognized authorities and if that is established by this answer, then call his attention to statements in them that disagree with the view he has expressed. That seems to me to be the sound rule to be applied. If either counsel think there should be any modification of that rule, I would be glad to have the authority.

Mr. Sizer: I think your Honor has stated the rule correctly.

Mr. Miller: We think that in one or two instances that rule has been infringed on by counsel on the other side, and we give notice that it has, on reviewing the testimony, we will move to exclude such extracts as have been read on cross examination on this behalf. This testimony is somewhat voluminous up to this time.

The Court: I do not recall any cases where the cross-examination has been carried further.

Mr. Miller: I have not been inclined to ask the enforce-

ment of that rule, as divers of the authorities, or some of them hold you may present witnesses with text books on examination in chief.

The Court: Yes, but that is contrary to the great weight.

Mr. Miller: But, if they have infringed, I give notice that I will move to exclude that from the record.

The Court: I understand that ruling is satisfactory to counsel on both sides, and it will be enforced All right, proceed, gentlemen.

WILLIAM F. BOSS,
resumed the stand for further

CROSS EXAMINATION, Continued.

BY MR. SIZER:

Q. Doctor, do you know the work of F. W. Paby, entitled a Treatise on Food & Dietetics?

A. Yes, sir.

Q. Is that a standard authority?

A. Yes, sir.

Q. Do you know the work of G. Bunge?

A. Yes, sir.

Q. A text book of physiological and pathological chemistry?

A. Yes, sir.

Q. That is a standard authority, is it?

A. I don't recall it as such.

Q. Well, is it a good, German work?

A. It is full of errors.

Q. Full of errors?

A. Yes, sir.

Q. And you do not regard it as a good authority?

A. No, he has made many statements which are not true.

Q. You have already stated, I believe, that you considered Cusshny a good authority?

A. Yes, sir.

Q. Now, Doctor, on the subject of the discovery of sugar in urine from the use of caffeine, I believe you stated that the only authorities on that question that you are familiar with, or that you recollected particularly about, was that one by Dr. Salant?

A. I spoke of two others, one by Richter and one by Rose. The Rose article, I heard him read myself.

Q. But that has been sometime ago, and you stated on cross-examination on yesterday you did not remember the

details of his article?

A. No, sir.

Q. And the same is true of that other article?

A. Yes, sir, I have not seen it recently.

Q. This article of Dr. Salant to which you referred was published in the proceedings of the American Society of Biological Chemists, Boston, Massachusetts, December 23, 1909.

A. Yes, sir; it was read then.

Q. In that report, Dr. Salant says, does he not, that experiments carried out on rabbits show that caffeine when given in sufficient quantities —

A. (Interrupting) That is not the article that I referred to. The article I referred to was one which was published last summer during the year 1910.

Q. Wherein did that article differ from this one?

A. If you will read the results, I will know.

Q. He states in this article, did he not, that the caffeine in sufficient quantities would produce glycosuria?

Mr. Miller: I submit that if he did so state, the article is at hand, and counsel evidently has it, and the witness says that is not the article to which he referred, and thirdly; I do not recall that this witness stated on examination in chief that his opinion in that behalf was based not entirely on reading, but on the contrary on experiments and reading.

Mr. Sizer: He expressly stated that he based his statement that sugar might be found in the urine as a result of taking caffeine or these three articles. I asked him about a particular article, the only one which he himself says —

The Court: (Interrupting) He says that is not the article.

Mr. Sizer: He says a subsequent article was published, and I am trying to show that the subsequent article published is the same as this. I submit that we have not had a latter one and I assume that this is the one he is referring to.

The Court: But he has stated this is not the article.

Mr. Sizer: I want to ask him if there is any difference in the statements in this article and the one he refers to.

The Court: This is bringing out indirectly the substance of an article which the witness did not refer to, and which he did not base his opinion on. If there is anything in this article, though, that contradicts the view expressed by this witness as a scientific fact that he said was based on reading, in whole or in part, you may show that part of it.

Mr. Sizer: What I propose to show, I want to show the limitations on the statements made by Dr. Salant in this article, that is, to what extent glycosuria was produced by the taking of caffeine, and in what animal. I want to know if Dr. Salant expressed any different opinion, or stated any different results in the subsequent article from what he stated in this one.

Mr. Miller: The subsequent article would be the best evidence.

The Court: I don't think that contradicts the witness—he merely states the general facts—this would not be to contradict him.

Mr. Sizer: He left the impression and made a very broad statement that Dr. Salant has stated in this article that the use of caffeine might produce glycosuria. I am entitled to show what Dr. Salant did say about it.

The Court: Have you got the article he referred to—otherwise I sustain the exception?

BY MR. SIZER:

Q. Have you got that article of Dr. Salant's?

A. No, sir.

Q. Was there any difference between the article published last summer and the one published in December, 1909?

A. I am not sufficiently familiar with this one to tell you.

Q. This publication I have here, the report of the Boston meeting, is of December 28th or 30th, 1909, and was published in June, 1910, is that the article you refer to?

A. I would like to see the publication that you refer to.

The Court: Hand the article to the witness so that he can tell.

Mr. Sizer: Yes.

The Witness: Yes, that is the article.

BY MR. SIZER:

Q. Now, in the first place, in that article, Dr. Salant confines himself to the statement that caffeine would induce glycosuria, if given in sufficient quantities, didn't he?

A. Yes, sir.

Q. Glycosuria is a technical term for sugar in the urine?

A. It is.

Q. Dr. Salant further stated, did he not, that glycosuria was induced more readily if the rabbits were starved four or five days and then fed fifteen or twenty grains of cane sugar?

A. I don't remember that. I remember that if you feed rabbits on carrots sufficiently—

Q. (Interrupting) If you feed an animal on a sugar-producing substance, you would not naturally expect to find sugar in the urine?

A. No, sir, not in rabbits, because they live on carrots almost exclusively at times.

Q. Well, how about cane sugar?

A. I said cane sugar would act very much the same as any other sugar in that respect.

Q. Well, if you would give an animal too much of cane sugar, it would be eliminated in the urine?

A. Yes, sir.

Q. Dr. Salant also stated that experiments on cats showed that caffeine would produce glycosuria but not so readily as in the case of rabbits?

A. Yes, sir.

Q. He likewise stated no glycosuria had been observed in dogs experimented on, and it contained a large amount of hypo hydrate, although many experiments of that kind had been made.

A. Yes, sir.

Q. Do you know of any reported case in which any authority claims to have found sugar in the urine of a human being due to the use of caffeine?

A. I do not this morning, but I think there have been such cases.

Q. Now I want to read in that conection this extract from Cusshny, and ask if you agree with that: (Reading.)

> "In the caffeine diuresis, the fluid part of the urine increased chiefly, but the solids also undergo an augmentation, though not to the same extent. Among the solids, the chief increase is seen in the sedium chlorida, the nitergenous constituents undergoing less alteration, although they also arise in amount; a small amout of sugar is often found in the urine, more especially when the food has contained large quantities of sugar-forming substances, but this glycosuria is probably due merely to the large quantities of fluid sweeping some of the sugar of the blood along with it, and does not indicate any dangerous alteration in the renal epithelium or in the metabolism."

Mr. Miller: I object to that for the simple reason he has not stated that he based his statements on statements by Dr. Cusshny, either in chief or cross-examination.

The Court: I understood that the witness's opinion on sugar forming was based on scientific reading.

Mr. Miller: On those three authorities that he stated.

The Court: I think if it is based on reading, it is competent to ask him as to other authorities. I did not intend to limit the rule to the particular authorities he named.

Mr. Miller: Not so much the particular instance —

The Court: I will apply that rule both ways.

BY MR. SIZER:

Q. Do you agree with that statement?

A. No, sir; I do not. That is merely an opinion of Dr. Cusshny.

Q. Then you don't agree with Dr. Cushny?

A. No, sir.

Q. But you say you have made no personal experiments?

A. None myself, neither did Dr. Cushny.

Q. How do you know?

A. Because there is no record of them.

Q. How do you know whether he has or not, why do you make an assertion of that kind?

A. They have not put them in the record.

Q. You mean to say you have not seen it stated in his book?

A. You can't find it in literature.

Q. You don't know how many experiments Dr. Cushny made—you don't know but what he has made some.

A. He may have made some but they have not been published.

Q. You mean not reported, then?

A. Yes, sir.

Q. He may have reported them in some work that you have not seen?

A. I think it is not very likely—that is what I meant; and you knew that is what I meant.

Q. You stated on yesterday that you were not very familiar with the American works.

A. I am familiar with Cushny's works; he is a Scotchman.

Q. You are not very familiar with American publications?

A. Yes, sir; I am.

Q. Did you state on yesterday that you didn't know much about these American works?

A. Yes, sir; not about the American text books of Pharmacology, but I am very conversant with the publications on the subject.

Q. And you do not pretend to say that Dr. Cushny

has never made any experiments with respect to the production of glycosuria by the use of caffeine?

A. I don't think he has ever published any such book.

Q. Do you undertake to testify as a witness that he never made any such experiments?

A. No, sir; of course not.

The Court: I have received a letter from Dr. Witherspoon in which he makes a statement in reference to the testimony; he desires me to submit it to the counsel for both sides.

BY MR. SIZER:

Q. Doctor, the effect of stimulation, primarily, is the increased capacity for work, is it not?

A. It depends on the nature of the stimulation.

Q. The stimulation of the brain increases the capacity for mental work?

A. Yes.

Q. The stimulation of the muscles and nerves increases the capacity for physical work?

A. You cannot say that in general because you might stimulate a certain nerve and inhibit its capacity for work.

Q. Well, a stimulation of the muscles will increase the capacity for work?

A. Yes, sir.

A. To a certain extent.

Q. The exercise of the organs, what they are made for?

A. To a certain extent.

Q. And all work of every kind, whether mental or physical, involves the expenditure of energy?

A. Yes, sir.

Q. When you talk, or think or walk across the floor, you are expending energy?

A. Yes, sir.

Q. What was the specific gravity of that syrup, the Coca Cola, that you injected into these frogs and testified to yesterday?

A. I don't remember, I remember that I measured it, but I don't remember.

Q. How did it compare with the specific gravity of the blood of the frogs?

A. It was much greater, but I don't know.

Q. How much greater?

A. If I can't tell you what the specific gravity of the syrup is, I can't tell you that.

Q. Was it much greater, considerably?

A. Yes, sir; considerably.

Q. How about the specific gravity of that solution of sugar?

A. That was about the same as that of the syrup—no, I got in one solution the same and in another one half such strength.

Q. What was the strength of the sugar solution or the proportion of sugar in it.

A. I gave it before applying the Coca Cola—I diluted it so as to make it not more than fifty per cent., I diluted it probably twenty-five per cent, certainly not over fifty per cent.

Q. Did you give that in solution, give them in solution stronger than that, any solution stronger than that?

A. No, sir.

Q. Does it make any difference on the final effect of a solution of that kind, whether the specific gravity is great or small?

A. It would make no difference if you injected it into the blood.

Q. It would make no difference in the way in which you did inject it?

A. It might make a certain difference but not a serious one.

Q. You stated on yesterday that caffeine in coffee as it is taken, is practically all free.

A. As far as my knowledge goes.

Q. And caffeine in tea is also all free, is it?

A. Probably.

Q. Caffeine in Coca Cola is free?

A. Yes, sir.

Q. Now, free caffeine has the same physiological and chemical effect, no matter what you take it in, whether water, coffee, or syrup?

A. Caffeine always has the same physiological effect.

Q. Now, taking up this subject of xanthine, that is a substance that is constantly forming in the body?

A. There is no proof to that effect.

Q. Do you know whether it is or not?

A. I think probably there is some xanthine formed in the body but I never; it is very hard to find it.

Q. Xanthine is taken in a great variety of foods?

A. Xanthine, no.

Q. Well, xanthine contains a substance, or a xanthine-producing substance?

A. Yes, a xanthine-producing substance.

Q. In fact, could a man live on any kind of food not containing these xanthine-producing substances?

A. Yes, sir.

Q. What kind of food could a man live on if he didn't take anything producing xanthine?

A. What they call the purin free diet which is very well known.

Q. What kind of a diet is that?

A. Mainly vegetable.

Q. What kind of vegetables?

A. Green vegetables.

Q. A great many vegetables contain xanthine-producing substances?

A. They do, small quantities of xanthine.

Q. What kinds of things would a man have to live on in order to eliminate any xanthine-containing substances from his diet?

A. He would have to live on a kind of meat not derived from the glandular —

Q. What kind of meat is that?

A. Muscles —

Q. (Interrupting) Live on muscles?

A. The muscles of the animal, and he would get very little in the vegetable diet I speak of. A trace of xanthine-producing substances, probably would be there.

Q. Well, a man could not live very comfortably or very satisfactorily if he eliminated from his diet all substances containing xanthine?

A. That is true. I won't make that statement, I will say substances belonging to the same class as xanthine. We know very little about xanthine.

Q. Yes. You personally know very little about it, Doctor?

A. Why, I know what has been published, and I know what my own work has shown me.

Q. You do not know how much some other people may know about it?

A. If they did not publish it I cannot find out.

Q. You only mean you have not seen very much about it in literature and do not know much about it yourself?

A. I have seen very much about it, but in the end we know very little about it, in spite of a great deal of experimentation.

Q. Is it not known to be a psysiological fact, Doctor, that xanthine in combination is found in every living cell in the body?

A. Yes; it is confined to the nucleus.

Q. And the nucleus is what you might call the heart of the cell?

A. Yes, but I do not think you can speak of it as xanthine in combination because it is certainly not xanthine in

that compound. It is entirely different chemical substance.

Q. It is what you might call a xanthine-producing substance or a substance which might be broken down in xanthine?

A. Not necessarily into xanthine.

Q. What is the particular substance?

A. Nucleinic acid.

Q. Is Nucleinic Acid a food for the body?

A. No, it is not.

Q. Does it produce energy?

A. I think not.

Q. Do you know whether it does or not?

A. Yes, I do, from personal experimentation.

Q. On what?

A. I fed pure nucleinic acid, derived from yeast, to a dog for a period of three weeks, I think, and I found that there was absolutely none of it assimilated. It was completely excreted, every particle.

Q. Is that the extent of your personal knowledge of it?

A. I have done experimentation with rabbits, too, on nucleinic acid.

Q. How many experiments on rabbits have you conducted of that kind?

A. I could not count them. I worked for two years on that one subject.

Q. Experimenting on feeding rabbits with nucleinic acid?

A. Yes.

Q. Is not this true, Doctor, that these xanthine-producing bodies are at least partly oxydized in the body in the court of metabolism?

A. Yes.

Q. Being oxydized in the body they to that extent produce energy, do they not?

A. Energy is necessary to oxydize them, but whether it comes from them or not is a grave question. It comes from the body.

Q. Is it not a fact that the oxydation of the xanthine-producing bodies, itself produces energy?

A. Perhaps to a very slight extent.

Q. The extent to which they produce the energy would depend on the extent to which they were oxydized, would it not?

A. Yes.

Q. What is the size of the spinal cord of a frog compared with the spinal cord of a man?

A. I could not tell you.

Q. It is vastly greater, is it not?

A. Yes, sir.

Q. And so the effect of any substance which affects the spinal cord would be much greater proportionately in the frog than in man, would it not?

A. I think you cannot reason that way. The frog's heart is much smaller than the man's heart but the quantity of drug to effect a frog's heart is not nearly in proportion to the size of the frog's heart to the man's heart.

Q. Suppose you have a substance which acts directly on the spinal cord, though, would not the action of that substance be much greater and more potent in an animal having a large spinal cord than in one having a small spinal cord?

A. Yes, it would be more potent in the case of an animal having a large spinal cord. The higher organized the central system is, the more developed, the greater would be the action from any nerve poison.

Q. Doctor, do you draw any distinction between harmless habits and harmful habits?

A. I do, decidedly.

Q. For instance, a man may form a habit of drinking lemonade.

A. Yes.

Q. And although he may get accustomed to doing that so that he wants to do it every day, that would not be such a habit as he might incur by taking morphine, for instance?

A. No.

Mr. Sizer: Your Honor, I have a work I will present this witness but he says he does not think very much of it. It is a work, however, that I expect to prove is a standard authority and I would like to have the privilege of submitting to the witness some excerpts from that authority, conditioned on my showing hereafter that it is a standard authority.

The Court: I do not think that can be done. I think if the witness says it is not a standard authority, that ends it so far as his examination is concerned.

Mr. Sizer: I submit that puts it in this situation: If the witness comes in and knows there are contrary views to his and says they are not on good authority, that absolutely deprives us of the benefit of cross-examining him on that particular.

The Court: I think there must be a limit to the cross-examination and that is a reasonable limitation.

Mr. Miller: I will say to counsel that Doctor Boos will probably remain here for some days and after he proves that fact by his witness, the fact he just stated he expected

to prove, I will be glad to give him the opportunity to cross-examine Doctor Boos upon that.

The Court: Where a witness says a book is not good authority, I think that limits it.

BY MR. SIZER:

Q. You were a witness in what are known as the Bleached Flour cases, were you not?

A. I was.

Q. Did you testify in that case as follows:

"There are some substances like vinegar or acetic acid, salt, baking powder, benzoic acid or benzoate of soda, alcohol and the like, which are among articles of human consumption which may become poisonous upon the injection of proper quantities." ?

A. No, I did not so testify. That is a mistake. I did not include alcohol in those.

Q. You did not?

A. No.

Mr. Sizer: I am reading from the notice of judgment.

The Court: That is immaterial.

The Witness: It is perfectly true as to the other substances, but to the best of my recollection I did not include alcohol. If I did, I did not intend to.

BY MR. SIZER:

Q. Alcohol is a common article of human consumption, is it not?

A. Yes.

Q. With respect then to these other substances, you did undertake to say that they might become poisonous upon the injection of proper quantities?

A. I did.

Q. But that they would not be poisonous in small quantities?

A. I did.

Q. Why is that, Doctor?

A. Because a good many of those substances, like common salt, for instance, are necessaries of life. To a certain extent the body requires them for its physiological economy, to carry on the processes of life, but when given in large quantity they become a burden and encumbrance on the system and then act as foreign bodies, or poisons,—whereas in other cases certain of those substances occuring very frequently in the food of man, although they are not in the nature of foods themselves, the system has become equipped, has been equipped by nature with certain mechanisms which render these substances harmless, or less

harmful than they are before they enter the system. That is the case with benzoate of soda.

Q. And acetic acid?

A. Acetic acid is a food.

Q. Acetic acid, as it appears in vinegar?

A. Why, yes.

Q. How about baking powder?

A. Baking powder is not in any sense a food, and is purely inorganic. It is composed of tartaris acid, and sodium bicarbonate. Bicarbonate of soda to a certain extent is useful to the body, but the other constituent, tartaric acid, may also be termed a food if not taken in excess.

Q. Is tartaric acid an inorganic substance?

A. No; that is an organic acid.

Q. Harmless in small quantities but injurious if taken to excess?

A. Not in small quantities; it is not only harmless but it is a source of energy.

Q. In other words, it is a stimulant?

A. Yes—well, if you will, I do not like that indiscriminate use of the word stimulant.

Q. You do not like that word?

A. No. It does not apply.

Q. What was the amount of caffeine that you administered to those frogs that you killed? Just express it in fractions of a grain—in the Coca Cola syrup.

A. For twenty frogs the amount required was 13/100ths —well, you wanted it in grains?

Q. Yes.

A. Was 13/6000ths. It is hard to make the fraction different because it is —

Q. Just say what fraction of a grain it would be, and what was the total weight of the frog.

A. I cannot —

Q. Give it, just in the fraction of the grain.

A. 13/6000ths of one grain. That is a fraction of one grain. 13/6000ths of a grain was required in the case of twenty frogs, and five frogs required 14/6000 of a grain.

Q. You mean 13/6000ths to the frog?

A. Pardon me—to the gram of body weight.

Q. What would that be to the frog, Doctor?

A. That depends upon the frog. There were twenty-five of them and no two weighed the same.

Q. What is the average weight?

A. About one ounce.

Q. What did that amount to in fractions of a grain per ounce, assuming a frog weighs an ounce?

A. You have to multiply thirteen in one case and four-

teen in the other by thirty.

Q. Would you mind figuring that out on the blackboard?

The Court: It would be just about 1/15th.

BY MR. SIZER:

Q. It would be about 1/15th, if that is satisfactory. That is about the way we figure it out. That is about right?

A. I think so.

The Court: That was the grain of caffeine in the compound and not the grain of the compound?

The Witness: No; that was the amount of the caffeine.

Mr. Sizer: In the compound, per frog.

BY MR. SIZER:

Q. Doctor, does the administration of caffeine result in any increase in the elimination of carbonic acid gas from the lungs?

A. I do not know.

Q. You do not know?

A. I do not know.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor, you were presented with the work of Doctor Cushny and there was read to you on page 255 an extract a portion of which was this:

> "But this glycosuria was probably due to the large quantities of fluid sweeping some of the sugar of the blood along with it." ——

You stated further that Doctor Cushny had made no experiments of his own. I will ask you whether or not the extract read to you confirms you in that view, and if so why?

Mr. Sizer: I object to that question. The extract shows for itself what it is.

Mr. Miller: I submit this is a matter of technical knowledge and if there is a construction to be put on it, it should be by the medical profession alone from the context of the language. I submit this witness has a right to state what that is.

The Court: Without stating this witness's conclusion, you may ask him if there is any real technical or medical construction of a phrase of that sort.

BY MR. MILLER:

Q. Is there or not a construction given by medical men

to phraseology of that sort, where the term "probably" is used in connection with the remainder of that language, that gives a distinct impression to the medical profession as to whether or not that is a matter of expert knowledge or merely the man's opinion?

Mr. Sizer: I want to submit that is not a proper question. The language is there and speaks for itself.

The Court: As I understand the question, it is whether the use of the word "probably" has a specific meaning in a technical or medical way and is not the result simply of his own experience. I will permit the question to be answered.

The Witness: Well, it is rather difficult to answer that question by yes or no. May I explain?

The Court: Is there any such general rule of construction that the word "probably" has any such meaning as that?

The Witness: I don't know just exactly whether I was asked to tell whether it meant that he had not performed any experiment or whether it was simply his opinion. He may have performed experiments, but these experiments did not show this fact to be the case.

BY MR. MILLER:

Q. Probably that does not imply that he has or has not performed experiments but merely implies the result.

A. It implies as to whether this fact has been proven by experiment.

Mr. Sizer: I submit that is not competent.

The Court: It does not change the meaning—the ordinary meaning, of the word "probably," and it is immaterial.

Mr. Miller: Speaking from another point of view, I submit that he has the right to tell what construction is ordinarily given that by the profession, a word in that connection, what that word means.

The Court: The witness answered and said that it was not a technical word, that the word was probably used like any other expression, and it is not a subject for expert opinion.

BY MR. MILLER:

Q. I will ask you to refer to page 249 of Cusshny's work and state what he shows with respect to the injection of large quantities of caffeine and what symptoms follow.

Mr. Sizer: I object to that. I have the right on cross-examination to call his attention to certain language in medical works and ask him whether or not he agrees with it. That is the extent to which medical authorities can be

used, and then counsel cannot on re-examination of his own witness get the medical authorities into the record by reading them to his witness and asking him whether he agrees with them or not.

The Court: You asked him about a portion of a work bearing on one question, as I understand it, the sugar-forming tendency.

Mr. Sizer: Yes, that is right.

The Court: If there is any other portion of that work that modifies or contradicts or explains the portion that you read, about the sugar-forming tendency, it may be read to him; but the general opinion of that author on the subject of caffeine is not competent. If the passage refers to or relates to the sugar-forming tendency and modifies or contradicts the statements made in any way, it may be read.

Mr. Miller: Your Honor please, I do not pretend that it does modify or explain as to the sugar-forming tendency. I am not prepared to say that, but as counsel has proven that this is a standard treatise and as counsel ha sput a portion of it in evidence, I submit that to permit counsel to utilize that portion and that portion alone, that that does contradict the rule of evidence as defined by Greenleaf.

The Court: I hold that it is not competent. I shall apply that rule now. We have got to limit the introduction of this technical matter, and I shall apply that rule to both sides impartially. I think that will give us a fair result.

BY MR. MILLER:

Q. I will ask you to look at this book and see if there is anything there that contradicts the statement with respect to the formation of glycosuria just read to you.

The Court: The witness may examine the book after he leaves the stand and if he finds it you may put him back on.

Mr. Miller: All right. I will ask leave to do so and I will leave the book with you, for the present, Doctor.

BY MR. MILLER:

Now, as to the mater of stimulation, Doctor, and what follows. Suppose that a particular function of the body be stimulated or exercised more than normally, what will be the result?

A. Why, you would invariably draw upon—either this stimulation would lead to disastrous results if the body could not answer to it, or else you would draw upon the re-

serve fund of energy which the organism always has, to answer the stimulation.

Q. Applying that to the brain, which I understand it stimulated by the use of caffeine, what will result in the case of repeated doses of caffeine from 91/100ths to one and a quarter grains?

A. There will be repeated stimulation, followed in every case by compensated fatigue, and in the course of time that would lead to serious disturbance if the functions of the brain.

Q. You were asked yesterday, I believe, to produce any authority that showed that depression did follow the use of caffeine. I asked you that on cross-examination. I will ask you if you have those authorities at hand, and if so, refer to them and tell in substance what they say on that subject.

A. Rivers & Weber, German physiologists, 1907— carried out a piece of experimental investigation on human beings in regard to the action of caffeine on muscular work, and in this investigation it was shown that in some cases the fatigue—that is, the depression, was greater than the stimulation from caffeine, the depression following upon it.

Mr. Sizer: We would like to have the books, if he has them.

Mr. Miller: We will be very glad to supply the page.

The Witness: I have not the page down here.

Mr. Hirsch: It will be enough if they will submit those books to us with the paging.

Mr. Miller: They were in Mr. McConnville's room all day yesterday and will be to-day.

BY MR. MILLER:

Q. What else, Doctor?

A. Then Weidel in a monograph on the subject of tea and coffee speaks of the fatigue which is produced by the use of coffee after the stimulation.

Q. Yes. Any others?

A. Those are all I have just now—oh, Lauder Brunton.

Mr. Sizer: How was that first name?

The Witness: Lauder.

Mr. Sizer: What edition was that?

The Witness: That was in the Practioner, London, 1906, volume 76, pages 38 to 47; that is the article. He speaks of the fatigue which is produced by tea and coffee and other caffeine beverages.

BY MR. MILLER:

Q. Now, state whether or not Lauder Brunton is re-

cognized throughout the civilized world as a standard authority and a man of repute in his profession.

A. He is.

Q. I will just ask you to read what Lauder Brunton says on that subject as to caffeine.

A. This is in regard to the action of caffeine?

Q. Yes.

A. (Reading) "Although it prevents the sensation of fatigue from being felt for a while, yet exhaustion finally comes to mind and body, with disinclination, mental and bodily exertion, and it tends to disturb the power of doing any useful work, either mentally or bodily. The power of self-restraint is diminished and the person becomes nervous, unduly sensitive and emotional. In addition to the action on the nervous system —"

Mr. Sizer: (Interrupting) I didn't ask the witness anything about that except with reference to the authority that states that depression followed the use of caffeine; I simply want to confine his re-examination to that point.

The Court: It will be so confined.

BY MR. MILLER:

Q. Do the extracts you are about to read deal with depression?

A. Yes, sir.

Q. Then read it.

A. "In addition to the action on the nervous system tea is a powerful stimulant to the circulation and if abused will tend to weaken,"—weakening being depression.

Q. Now, as to the xanthine-producing substances, what did you mean by that when you stated that they were taken into the body and xanthine was afterwards formed therein, what is the process of the xanthine formation and why is it formed?

A. You nean in general?

A. Yes.

A. Under ordinary circumstances in the absence of caffeine or caffeine-containing substances, xanthine if it is formed in the body is formed by the breaking down of nucleinic acid.

Q. And what is the occasion for the formation of xanthine, what is it?

A. It is cell repair, it is the replacement of tissue which has become useless, which has outlived its usefulness, by new tissue—the old tissue has been broken up in such a way that it cannot be properly eliminated from the body and it is in this way that the xanthine bodies are formed in the human body.

Q. Then what becomes of the xanthine bodies?

A. Under all ordinary circumstances the xanthine bodies of a certain type—you see that includes a great many different substances that re-act chemically very differently, but xanthine is formed as decomposition product of nucleinic acid, and it may possibly be further broken up into uric acid and allangoin.

Q. How is it exuded or how is the body relieved of it?

A. I think very likely the small quantity of uric acid which is contained in 24 hours of the human life, arises from the nuclein acid destroyed —

Q. (Interrupting) What does result from the formation of uric acid if it is not discharged from the body?

A. It is apt to produce intoxication.

Q. And by that you mean what?

A. Poisoning.

Q. Now, if you increase the normal supply of uric acid by taking tea, for instance, or these xanthine forming products, what will be the result?

A. I think that caffeine does not increase uric acid in the human—caffeine is a trimethylxanthine, and I think there is nothing to show that the body is capable of breaking up caffeine into anything other than pari-xanthine, theophyllin and theobromine, and possibly mono-methylxanthine.

Q. You say break it up in parixanthine, state whether that is a poison.

A. Yes, sir. That is to say, I think from caffeine, xanthine itself not being formed, there being no authority to show it is, but parixanthine is formed, theophyllin, theobromine and two kinds of monomethylxanthine.

Q. Now, is caffeine ever prescribed or administered by a reputable physician or physicians or its use advocated by text writers to your knowledge for healthy persons, persons who are in normal health?

A. No, sir.

Q. How is it used and prescribed? That is, for what class of persons?

A. Caffeine is given most extensively and commonly to increase the elimination of fluids from the body; that is to say, dieuretic, to increase the flow of urine.

Q. Is it or not true that in proportion to the brain of a person the effect of caffeine increases, that is, in proportion to the size of the brain, all things else considered?

A. Caffeine being a nerve poison its influence upon the animal organism will be greater and more developed on the central nervous system. The higher the development of the brain in the creature the more intensified the re-

action of caffeine will be in that creature.

Q. As compared with man, is the child's brain larger or smaller, pound for pound of body weight?

A. Smaller.

Q. I say, the child's brain as compared with that of man.

A. No, pardon me. About the same size as compared to body weight.

The Witness: Pardon me, I have another reference here that I would like to give.

Mr. Miller: Give that, please.

The Witness: This is another reference on the fatigue produced by caffeine.

BY MR. MILLER:

Q. And by that you mean depression?

A. Yes, sir.

Q. That you were asked by counsel to produce on yesterday?

Yes, sir; it is by Richaud, professor in the University of Paris, in his text book on pharmacology and therapeutics, the title of which is the following: "Precis Therapeutique et De. Pharmacolagie, 1908," pages 808-9.

Q. Is there any other explanation that you desire to make, Doctor, in reference to any part of your testimony?

A. No, sir.

Mr. Miller: Then you may re-cross examine him.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. Doctor, what doses of caffeine do these authorities say produce these injurious results, or in what way were they administered?

A. In which case?

Q. In any of them; take them one at a time. The first man you spoke of it. Did he say anything about the quantity of the caffeine that would result injuriously?

A. Rivers & Weber. Those were ordinary doses, such as were taken in ordinary life.

Q. Does the article so state?

A. Yes, sir; you find it in the reference.

Q. Rivers & Weber?

A. Yes, sir.

Q. And you say they state in that extract those were the ordinary doses of caffeine?

A. No, sir; but the doses are given.

Q. What are the doses?

A. I don't remember.

Q. Are Rivers & Weber standard authorities?

A. Anything which is published in the Journal of Physiology is standard.

Q. You say they are standard authorities?

A. It is a very good piece of experimental work.

Q. Do you know who they are, or where they live?

A. No, sir. Mr. Sizer, if the quantities used were toxic, the experiments would be valueless from a physiological point of view.

Q. Well, I didn't ask you anything about that. I was asking as a matter of fact what these different people say, what dose was given. What does Wiegel say about the quantity of caffeine?

A. Weigel says that the constant use of tea and coffee in small quantities variably leaves a nervous exhaustion.

Q. Are you reading now from the authority?

A. No, sir; I am reading from my note.

Q. You have, however, the authority here?

A. Yes, sir.

Mr. Miller: He means that we have it.

BY MR. SIZER:

Q. Brunton says that according to that experiment that you read that tea, if abused, will lead to serious consequences.

A. Yes, sir.

Q. Brunton is the author of Theurapeutics of the Circulation?

A. Yes, sir.

Q. And I suppose that you consider him a good authority.

A. Yes, sir.

Q. I wish to read you from page 145 of this work and ask you if you agree with what Doctor Brunton states there. Speaking of cardiac nutrients — (Reading.)

> "Amongst these we have a series of bodies to which the term of purin bodies had been applied—xanthine hypoxanthine, methylxanthine, dimethylxanthine or theobromine, and trimethylxanthine or caffeine. All these bodies are probably injurious in large quantities, but just as a few cinders may help a fire, so when used in small quantities they are often very useful. Beef-tea and extracts of meat have little or no nutritive action, and life cannot be sustained upon them, but they are useful stimulants as was shown by Parkes in the Ashanti campaign."

The date of that work is 1908. Do you agree with that?

Mr. Miller: My objection is, first I did not go into that on redirect examination. I merely asked this witness to produce authorities on one particular subject. He produced them and read one of them. This does not bear on that subject at all, and hence I say that this opens an entirely new field, namely, that of the circulatory system, and therefore is not in response to anything brought out yesterday, or with reference to which I interrogated the witness again this morning.

Mr. Sizer: He questioned him quite extensively on the subject of xanthine, and this is directly bearing on the xanthine question. The question of effect in the human body.

The Court: How does it contradict or affect testimony of this witness?

Mr. Sizer: The witness stated that xanthine and theobromine and pari-xanthine, these things are poisons. I quote this authority who says they are useful articles in the human body.

The Court: You may ask him.

BY MR. SIZER:

Q. Do you agree with that, or not, Doctor?

A. I don't agree with that.

The Court: The exception is overruled.

Mr. Miller: We desire to note an exception.

BY MR. SIZER:

Q. You say that if a man's name appears in the Journal of Physiology, he is a good authority?

A. As a rule.

Q. Has this man Dr. Bunge, published any articles in there?

A. Yes, sir.

Q. Have you considered him a standard authority?

A. I object to his text books.

Q. He is a good man generally, but wrote a bad text book?

A. He is a dreamer.

Q. Has the nightmare?

A. Yes, sir.

Q. And you say that you never knew doctors to prescribe caffeine, theobromine or pari-xanthine for persons in good health, did you?

A. I can't be responsible for what doctors prescribe.

Q. Well, didn't you make that answer to a question of Mr. Miller, physicians did not prescribe caffeine and theobromine and perhaps some other kindred substances to people in good health?

A. Yes, sir.

Q. Well, physicians do not prescribe anything to people in good health, do they?

A. It is a question whether we can determine always whether a person is in good health, I think the teaching of hygiene to people—in schools—

Q. (Interrupting) I am not asking you about the teaching of hygiene to people in the high schools.

The Court: We will not go into that.

BY MR. SIZER:

Q. This theobromine, that is dimethylxanthine, one of the xanthine bodies, this is the active alkaloid in chocolate and cocoa?

A. Yes, sir.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Just a moment, from this treatise, on this page which adverse counsel has read to you, namely Brunton, page 145, I will ask you if there appears this statement in respect to caffeine, immediately following that which counsel read, and in the same paragraph: (Reading.)

> "Amongst the most powerful cardian nutrients appears to be glucose; for Locke found in his experiments that the addition of glucose, even in very small quantity, to a saline fluid greatly increased its nutritive effect upon the isolated mamalian heart. Other sugars have less action. Their nutritive effect apparently runs parallel with their susceptibility to fermentation, glucose standing far ahead of the others. Caffeine in large doses acts as a muscular poison, and tends to cause strong contraction, ending in rigor of the muscles. Its effect in small doses upon the heart appears to be that it increases the muscular contraction, and strengthens the ventricular beats."

Do you find that statement there?

Mr. Sizer: I submit that does not contradict him in any way, what he has read to the witness.

The Court: Well, it is a question —

Mr. Miller: That is a part of the text.

Mr. Sizer: I don't object to its going in, but submit it is not proper examination.

The Court: Well, we will just let it stay in and save time.

(Witness Excused.)

J. R. MUSSER,

the next witness introduced on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Dr. Musser, where do you reside?

A. Philadelphia.

Q. What is your profession?

A. Medical practitioner, physician.

Q. How many years of practical experience have you had, Dr. Musser?

A. Since 1877.

Q. You graduated where?

A. In the University of Pennsylvania.

Q. Have you ever had any professional connection with that institution since?

A. Ever since graduation, I have been connected with the institution, and am at present Professor of Clinical Medicine.

Q. How long have you been a Professor in that institution?

A. Twelve years.

Q. What is clinical medicine, what do you mean by that term?

A. It is practical medicine, so to speak, the study of cases and the application of treatments in those cases.

Q. State whether or not in that character of practice you are brought face to face with the people?

A. I have charge of the Medical Boards of the hospital in connection with my professional position, and hence, am brought face to face with them.

Q. And are you a member of the American Medical Association, Doctor?

A. I am a member of it; I have been President of that organization.

Q. What kind of an organization is the American Medical Association; what is it?

A. It is an organization of the medical profession, the entire medical profession.

Q. Of the United States of America?

A. Yes.

Q. And you have served as President?

A. Yes, sir.

Q. With what hosptals are you connected now?

A. The hospital of the University of Pennsylvania, and the Presbyterian Hospital, attending physician.

Q. Are you consulting physician to any other hospital?

A. Quite a number.

Q. Located where?

A. In Philadelphia.

Q. Have you written any books on medicine, or treatises on medical topics, or subjects, and if so, what?

A. Treatises on medical diagnosis.

Q. Is that a text book?

A. Used as a text book.

Q. By the medical profession throughout the country?

A. Yes, sir.

Q. Are you, or not, the author of any other treatises on medicine?

A. Various articles in systematic works on medicine and therapeutics; editor of Therapeutics published recently by Saunders.

Q. How many volumes of that?

A. Three.

Q. State whether or not during your career as a physician, student and teacher of medicine, you have had occasion to observe the effects of the administration of caffeine on the human system.

A. I have.

Q. Have you or not prescribed it.

A. I have prescribed it.

Q. For what diseases?

A. As a stimulant to the renal functions.

Q. And by that you mean what?

A. The kidney, the action of the kidney, a stimulant for the brain and nervous system.

Q. Why is it prescribed for the kidney, if it is prescribed?

A. In order to increase the amount of the action, the activity of the kidney, increase the amount of the urine.

Q. If the kidney is in normal condition, is it prescribed?

A. No.

Q. If the brain or spinal cord is in normal condition, is it prescribed?

A. No.

Mr. Sizer: I submit that it is not a proper method to examine for the reason that your Honor said a while ago on the cross examination of Dr. Boos, that is a self-evident proposition, that a Doctor don't prescribe for a well man.

The Court: Well, that is immaterial.

BY MR. MILLER:

Q. State, Dr. Musser, or rather, I should ask you how caffeine affects the nervous system and how it affects the brain or heart, if it does?

A. It affects the nervous system by causing an excitement on account of which you have headaches, perhaps tremulousness, irritability of the nervous system and heart by increasing its activity, and possibly causing palpitation; of the stomach by direct local effect, irritating, bringing about increased secretion and causing excess of acid, and in other ways impairing the digestion.

Q. To what do you ascribe this action on the heart?

A. It may be the direct action or it may be through its effect primarily on the stomach, it is rather difficult to say.

Q. If it be through the stomach, what would be the course of the action?

A. What is called reflex action, causing indigestion and secondary palpitation.

Q. State if you have seen and have a copy of the analysis made by the witness, Dr. Fuller, of the Coca Cola product that was seized, which is the subject of the present controversy.

A. I have seen such an analysis.

Q. Have you a copy of that in your possession, Doctor?

A. I do not believe I have it now.

Q. Well, I pass you what purports to be a copy of one of the analyses, and I will ask you to file it as exhibit No. 1 to your tesimony, and also, I will ask the stenographer to copy it, that it may not be lost, in the record, and then state, Doctor, from a study of that analysis whether or not there is any neutralizing ingredient or agent in connection with that mixture, that would offset or prevent the effects of caffeine, which you have stated would be the natural effect of its administration.

The Court: Before he answers that, one of the jurors wants to be excused.

(Thereupon the Court took a recess for five minutes.)

AFTER RECESS:

Mr. Sizer: We object to that question, the witness is not qualified as a chemist.

Mr. Miller: I submit he does not have to qualify as a chemist.

The Court: I overrule the exception.

Mr. Miller: He has qualified as a physician, and he has been asked for the effect on the human system.

Mr. Sizer: No, he asked whether any other substance that would interfere with the effect of caffeine; that is a chemical question.

The Court: On the human system. The question is all right.

BY MR. MILLER:

Q. State whether there is any neutralizing agent to offset the effect of caffeine on the human system.

A. There is not.

Q. State whether or not caffeine administered in the doses and in connection with the other ingredients that are shown on that analysis in your opinion there, in the syrup as it is made up with the other ingredients there, and in the proportions shown on that analysis, are in connection with the six or eight ounces of carbonated water, might prove injurious to health, or might have any effect on health, and is so, what that effect would be.

A. Depending on the constancy with which it was taken, the effect on the health would be that of stimulation, followed by secondary effects of exhaustion or fatigue.

Q. Would that be beneficial or otherwise?

A. It would be quite serious; furthermore, the effect would be to show a disturbed or over-stimulating of the nervous system, so as to produce the series of symptoms I have mentioned, the local effects on the stomach which I have also detailed.

Q. Now, state whether or not the administration of that mixture there, as it is shown on the formula you have, or in connection with the carbonated water, as I have indicated, would have the same effect on all persons, or whether its effects would vary with different persons.

A. The effects would vary with different persons.

Q. What class of persons or classes of persons would likely be more susceptible to its effects?

A. Those that are in poor health, those that are of so-called nervous temperment, or are of unstable nervous system, on children, on young people, the effect would be very serious.

Q. State whether or not it is true that the administration of a single dose of it, as I have indicated, might produce symptoms such as you have described in that class of persons that you refer to, namely, children and nervous persons.

A. It might.

Q. State whether or not caffeine is a habit-forming drug.

A. I consider it such.

Q. Now, on what do you base that statement?

A. Upon the fact that once taken or taken over a period of time, there is a desire or craving of the system to repeat the dose.

Q. Has that been the result of your observation and experience, and extensive treatments, Doctor, at hospitals?

A. It has.

Q. Is caffeine a food?

A. It is not.

Q. Why not?

A. It does not supply the tissues or energy.

Q. State whether or not you have treated patients for caffeine.

Mr. Sizer: I object to that, the witness has not qualified as a pathologist, and the question is as to whether caffeine is a food—he is not competent to answer.

Mr. Miller: I submit he is qualified after the extensive teaching and practice he has had.

Mr. Sizer: But he has practiced as a physician.

The Court: I think the exception is well taken under the witness qualifies.

BY MR. MILLER:

Q. State, Dr. Musser, whether or not you are prepared to say whether or not it is a food in your opinion, and if so, tell what your qualifications in that respect are, before answering.

Mr. Sizer: I prefer that he state his qualifications first.

Mr. Miller: State your qualifications.

The Witness: Simply that of a physician who has observed the effect of caffeine and caffeine-bearing substances upon the human system.

BY MR. MILLER:

Q. Have you or not observed the effects of foods and studied those on the human system?

A. Yes, I have.

Q. For what number of years?

A. Ever since I was engaged in the practice of medicine.

Q. And that has been for how long?

A. Thirty-two years.

Mr. Miller: I submit that he is qualified to speak, your Honor.

The Court: Have you made a study of observed effects, as distinct from the outward effects, so to speak, the symp-

toms of illness, and matters of that kind, sir?

The Witness: I don't quite catch.

The Court: I made the physiological changes that were made and the chemical reaction following it so as to qualify yourself to be able to state when a thing does or does not form tissues.

The Witness: May I explain. As a physician in charge of cases, we require tissue building, that is to select material to build up these tissues, and therefore, in that sense, I should think —

The Court: You have observed the building up of the tissues?

The Witness: Yes.

The Court: I hold him competent.

BY MR. MILLER:

Q. You have had a practical experience?

A. Yes, sir.

Q. Rather than a laboratory one?

A. No laboratory one.

Q. State whether or not caffeine is a food.

A. I don't consider it such.

Q. Why?

A. Because it does not biuld up the tissues, it does not give energy and does not aid in the repair of the organism.

Q. State whether or not you have been called on to treat persons afflicted with caffeine poisoning.

A. I have.

Q. Now, after the caffeine was withdrawn from them what was the condition of health that followed, was it improved or not?

A. It was.

Q. Assuming that the mixture of which you have the formula, be administered either as Coca Cola syrup or in connection with carbonated water, state whether or not, in your opoinion, it would be more harmful to the person consuming it than if a like amount of caffeine were taken in a cup of tea or coffee as beverage at meals, and if so, why.

A. It would be more harmful, because the latter is usually taken accompanied with a considerable amount of food, whereas, the former is taken with the stomach empty, and hence, the direct local effect would be greater, there would be more likelihood of greater absorbtion and serious effect upon the nervous system.

Q. What has been your observation as to the proportion of people who are injuriously affected by the taking of caffeine, whether in soft drinks and beverages, or taken

in tea and coffee.

A. That would be a very difficult thing to answer. Perhaps only in this way: in my clientele, there is not a day I do not see two or three patients that I must discontinue the use of either one of these beverages because of the bad effect I see, but I can't give the exact proportion.

Q. And that is due to what ingredients?

A. To the caffeine.

Q. To the caffeine?

A. Yes, sir.

Q. State whether or not in your opinion, the use or consumption of Coca Cola, either in the syrup form, as shown by the analysis which you have, or in carbonated water, as previously indicated, would affect the normal individual, and if so, how.

A. If continued, it seriously would, in producing various symptoms of chronic caffeine poisoning.

Q. Now, would it affect the abnormal person or the person who was in depleted health, or who was suffering already from nervous debility?

A. It would increase the irritability or the excitability of the individual, it would more quickly bring about a recurrence of those symptoms, and they would be more aggravated.

Q. Is the average man in normal health, or not?

A. Well, that is —

The Court: That is purely a question of definition.

The Witness: Yes.

Mr. Miller: I mean the everyday man that you come in contact with.

The Court: If the normal health is the health of the average man, it is. You might ask him in what sense he uses the term "normal health."

BY MR. MILLER:

Q. I will ask you in what sense you use that word.

A. A man who is capable of doing a normal amount of work of an individual of such size and weight, that an individual of such size and weight could do, that his functions are all normal, that he sleeps the usual time required for such individuals, and he can do all this without the use of stimulants or artificial agents to bring that about.

Q. Is or not caffeine an artificial agent?

A. It is.

Q. If stimulation be produced by it, is it normal or artificial?

A. Artificial.

Q. What is the effect of artificial stimulation on the

human health?

A. The effect is to stimulate primarily and eventually to cause depression, followed by depression and exhaustion.

Q. I mean by that that whether or not it is ultimately harmful.

A. It is harmful.

Q. Do you, or not, have occasion largely to treat stomach troubles and stomach disorders?

A. Yes, sir.

Q. How many people are perhaps in these hospitals where you have immediate charge, Doctor?

A. How many?

Q. Yes, on an average.

A. I have charge of forty beds in one hospital and about forty beds in another—one hospital is continued service and the other hospital four months of the year.

Q. Are these beds usually filled with patients?

A. Yes, sir.

Q. For a consulting for how many other hospitals, Doctor?

A. Six.

CROSS EXAMINATION,

BY MR. SIZER:

Q. Do you use tea and coffee in these hospitals?

A. It is used.

Q. And you allow it to the patients as a regular part of their diet?

A. Not by any means.

Q. Well, all of them take it.

A. We take it away from those it is necessary to take it away from.

Q. Unless there is something peculiar about the patients that induces you to think that tea and coffee may hurt them, you give them coffee and tea just the same.

A. Well, I have nothing to do with that.

Q. Well, you know it is done?

A. Yes, sir.

Q. In the hospitals?

A. Yes, sir.

Q. Now, the fact is, Doctor, that the question of whether the use of caffeine-containing beverages is injurious, it depends on the quantity taken, does it not?

A. Not necessarily.

Q. Well, it is a fact that caffeine-containing beverages may safely be taken in smaller quantities with out injurious results.

A. I doubt it.

Q. Didn't you say in the deposition that you gave in this case a few months ago in Philadelphia?

A. I don't remember.

Q. Didn't you make this answer to a question asked you—you did testify in this case?

A. Yes, sir.

Q. Now, I will call your attention to it. "Q. The effect is dependent upon the quantity taken and upon the individual?" and your answer was, "Yes, and partly upon the individual."

A. That is true, yes, sir.

Q. The effect does depend on the quantity taken?

A. The quantity taken and the amount absorbed.

Q. The amount absorbed?

A. Yes, sir.

Q. Now then, Doctor, if you take caffeine in the form of hot coffee, a hot drink, more is absorbed than in a cold drink.

A. If it is taken on an empty stomach.

Q. Well, don't you know the degree of absorbtion is greater with a hot drink than a cold drink, the rapidity of absorbtion?

A. No, sir, I think physiologists so state.

Q. You don't qualify as a physiologist?

A. No, sir, I do not.

Q. Now, Doctor, don't you know it to be a fact that tea, for instance, is probably taken more extensively beteween meals in this country than at meals?

A. I do.

Q. And don't you know it to be a fact that in some European or Eastern countries, coffee is taken as extensively or more extensively between meals than at meals?

A. Yes, sir.

Q. Have you had any experience in making observations as to the effects of caffeine, except on people who have come to you to be treated?

A. Only from general observation of the effects of the tea or coffee habit upon communities.

Q. Well, now, that is just in a general way, as you say —

A. No, what I gather from —

Q. (Interrupting) It is true that your only experience or knowledge of caffeine is derived from your experience with people who come to the hospital to be treated?

A. No.

Q. Are they people whom you treat as a physician?

A. Also my observation of people as I meet them in

the usual walks of life.

Q. People that are drinking tea and coffee?

Q. Do you know any people that do not drink tea and coffee?

A. Yes, I do.

Q. Do you know very many people—you don't know very many people?

A. Quite a number.

Q. Most of your acquaintances do drink tea and coffee, don't they?

A. More or less, I presume they do, I am not prepared to say that.

Q. And a good many of them are in good health, so far as you know?

A. Apparently, yes.

Q. So far as you know?

A. But a great many are in very bad health or miserable state.

Q. All the people who drink tea and coffee you are acquainted with are in bad health?

A. I presume not, I am not prepared to state that.

Q. A good many people are in bad health who don't drink tea or coffee?

A. A good many.

Q. Now, of course, you don't know except in a general way about the extent the people you meet casually on the street may drink tea and coffee.

The Court: That is getting a little too far.

Mr. Sizer: I was trying to find out whether he did not have some other means of knowing.

BY MR. SIZER:

Q. Your personal use of tea and coffee, I say your knowledge is from your personal use of tea and coffee, and the effects of it, and from your experience.

A. In part, and in part from my observations and reading, from knowledge that there is a wide-spread attempt and a growing in the use of other substances to take the place of tea and coffee.

Q. What kind of substance, for instance?

A. The so-called famous hot drinks that are gotten up.

Q. Postum?

A. I believe that is one, I suppose.

Q. Chocolate and cocoa?

A. They are fair foods, yes.

Q. They also contain theobromine and caffeine?

A. I don't know.

Q. You don't know that?

A. I am told —

Q. You do not qualify, then as a chemist?

A. No, sir.

Q. You say, now, Doctor, that caffeine has no local eeffct on the stomach?

A. It has.

Q. How do you know that, Doctor?

A. Because of the symptom of irritation which is likely to arise.

Q. Because of irritation that is likely to arise. Is that from administering caffeine medicinally or taking it in the form of a beverage?

A. Taking it in the form of a beverage.

Q. Do these same symptoms follow the use of caffeine as a medicine?

A. They will.

Q. Are you prepared to say, then, Doctor, that in all cases caffeine in an irritant to the stomach?

A. No; I would not say in all cases. I would say in a very large number of cases.

Q. Do not the authorities disagree with you on that proposition?

A. I do not know.

Q. You do not know what the authorities do say on that subject?

A. I know in a general way what they say, yes.

Q. Are you familiar with H. C. Wood on Therapeutics, Its Principles and Practice?

A. Yes.

Q. That is a standard authority?

A. It is.

Q. I will read from page 339 of this book: (Reading)

> "Caffeine is an irritant and for practical purposes may be considered to have no local action except it be on the sensory nerves."

Do you agree with that?

A. I do not.

Q. Are you familiar with Cushny's work on Pharmacology and Therapeutics?

A. I am.

Q. And the action of drugs. I will read you this from page 254 of Cushny's—is that a good authority?

A. Good.

Q. (Reading)

> "The alimentary tract is not affected by caffeine, but after theobromine, discomfort and loss of appetite are sometimes complained of, probably owing to the changes in

the gastric mucous membrane."

Do you agree with that?

A. I do not.

Mr. Sizer: We would like to have the opportunity to bring some other authorities to present this witness, but we have not got them right now.

BY MR. SIZER:

Q. Do you ever administer caffeine in the form of citrate?

A. I do.

Q. Do you ever administer it in any different form?

A. Plain caffeine sometimes, sir.

Q. The citrate of caffeine might be an irritant to the stomach on account of the acid contained in it, might it not?

A. I would hardly think so. It might.

Q. So the citrate might have a different effect in that respect from pure caffeine?

A. It might. It is possible to juggle in that way about it, but it is not likely.

Q. You have a theory, have you not, Doctor, that even a moderate amount of water very often causes stomach disease?

A. I don't know of it.

Q. Did not you write an article—you have written a book, have you not?

A. I am sorry to say I have.

Q. What is the title of that book?

A. "Medical Diagnosis." It has not got anything to do with —

Q. (Interrupting) Did you ever write a book entitled: "Practical Treatment, Musser & Kellar"?

A. I wrote one chapter of that book.

Q. Did you write the chapter that dealt with the effect of water on the stomach?

A. I did not.

Q. Do you endorse what was said in that chapter?

A. We are not responsible for what is said by various others.

Q. This is a book, though, in which you were one of the co-authors, was is not?

A. Co-editors.

Q. Do you endorse the chapter in that book on the subject of the effect of water on the stomach?

Mr. Miller: I submit that is immaterial.

The Court: It seems to be.

Mr. Sizer: Your Honor, it is his book; I just want to

know what his theory is about stomach disturbance. I want to know if he believes that caffeine in the stomach disturbs it the same as water. I am just getting around to that point, and just asked him about his book in that connection.

Mr. Miller: It is not his book.

Mr. Sizer: A book he is one of the co-editors of.

The Court: He says he is not responsible for the other articles. You may ask him what he agrees with, not what anybody else has said as to the effect of the water. I do not see what the question of the water or disturbance on the stomach from water has got to do with it. I sustain the exception, on the ground of immateriality.

BY MR. SIZER:

Q. You never had any experience at all, Doctor, had you with the use of Coca Cola?

A. I never had.

Q. And your testimony as to the deleterious effects that might follow from the excessive use of caffeine is based on the use of tea and coffee and on the effect of caffeine as administered to your patients?

A. It is.

Q. You never observed any of your patients forming a caffeine habit from that, from the fact that you gave them caffeine as a medicine, did you?

A. I have not from giving caffeine as a medicine, but from students taking caffeine.

Q. You spoke a while ago—do you mean taking pure caffeine?

A. They took the pure caffeine; yes.

Q. How much of it did they take?

A. Ten to fifteen grains in a night.

Q. In a night?

A. Yes, sir.

Q. How many of them were in the habit of doing that?

A. I have not any—I do not know that it is—I can not tell you how many; but it is the custom, unfortunately, of students, as examination approaches, to whip themselves up with extra doses of caffeine.

Q. You mean it is the custom among the students in your institution there to take from ten to fifteen grains of pure caffeine a night when they are preparing for examination?

A. That happens sometimes.

Q. Does it happen as a regular or common thing?

A. Some of the students seem to think—that is, a number of them,—I cannot tell you how many, but it

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has occurred.

Q. Are those the cases of caffeine habit that you say you treated?

A. No, not the only ones by any means.

Q. How long would they keep that up, that habit of taking ten or fifteen grains?

A. Four or five days.

Q. And then quit?

A. And then quit.

Q. They did not form any permanent habit with it, then?

A. Fortunately, they put themselves under such regime that they could not form any permanent habit.

Q. They would take for four or five days ten to twelve grains and then stop?

A. Yes.

Q. Are there any other cases of habit-forming from the use of caffeine that you have observed?

A. From the use of the effervescent citrate of caffeine in headaches by patients.

Q. How many cases of that kind have you treated?

A. I cannot give you the exact figure. Perhaps one or two a year, or perhaps one or two in three years.

Q. Those are cases where people would take it to stop headaches, and would get in the habit of taking citrate of caffeine to cure the headache?

A. Yes.

Q. Whenever they would have a headache they would take the citrate of caffeine?

A. Or whenever they have sypmtoms that suggested they were going to have a headache, to prevent the headache.

Q. They would take it then as a remedy for that particular condition?

A. And also for that state of the nervous system that would come about the time they would expect the headache which they knew caffeine would relieve.

Q. They would think if they took the dose of caffeine it would prevent the headache and relieve the consequences that followed?

A. Yes.

Q. And for that reason they would take the citrate of caffeine?

A. They would begin with a moderate amount and increase it from day to day and from week to week.

Q. How many cases of that kind do you say you have treated?

A. I cannot say how many.

Q. How did you treat it?

A. By general measures; the withdrawal of the drug, either immediately or gradually, and by putting them in such relations that they would not get headaches.

Q. And whenever the headache —

A. (Interrupting) And by the administration of tonics, food, etc.

Q. Whenever you would put them in such condition the headaches would disappear and then they would stop taking the caffeine?

A. No; the bad effects of the caffeine would disappear.

Q. What other bad effects were there from caffeine aside from the headaches?

A. Extreme irritability, nervousness, restlessness—inability to sleep.

Q. How much would these people take? What is the most any one of them ever took?

A. I don't remember. A quarter of a bottle, I think. They showed me sometimes they would take one of those bottles that are on the market, the entire bottle, in one day.

Q. What else is there in those bottles besides citrate of caffeine?

A. I am not a chemist. I do not know. Carbonated—some material which causes effervescence,—carbonic acid.

Q. Do they not have acetanilid, or some coal tar preparations?

A. No. Not in this preparation, that is another preparation. I am not referring to that.

Q. How much caffeine would be in one of those bottles?

A. Perhaps one grain to each teaspoonful of the material.

Q. And how many teaspoonfuls of the material were there in the bottle?

A. Oh, a two-once bottle, sixteen; a three-ounce bottle —of course, depending on the size of the bottle.

Q. About how much? Just give us an approximate of the amount of caffeine that would be in one of those bottles.

A. It would depend upon the size of the bottle.

Q. The one you say they have taken in a day.

A. I think they are considered a three-ounce bottle. I don't recall, though, and cannot tell you that; but a three-ounce bottle would mean about twenty to twenty-four grains.

Q. Twenty to twenty-four grains in a day, then?

A. Yes, that some would take, and others not so much.

Q. Yes, about what they would take. Now, Doctor, do you know that this is true with respect to the ordinary use of caffeine as a food, aside from its use as a drug or medicine, that one who gets accustomed to taking caffeine in a beverage, as tea or coffee, does not as a rule desire to increase the quantity that he takes daily, but is satisfied with the amount that he is ordinarily accustomed to?

A. Perhaps as a rule, but that does not necessarily follow.

Q. I did not ask you if it did not necessarily follow. Is not that the general rule?

A. Generally, yes.

Q. Generally so. If a man is in the habit of taking two or three cups of coffee a day, he generally takes that amount and no more?

A. There are many times when he will want more.

Q. I know. As a general rule that is what he does?

A. As a general rule, yes.

Q. Is it not true, also, that if a man becomes addicted to the opium habit or the cocaine habit, or the chloral habit, or any of those things, that he will continually increase the dose in order to produce the effect he desires?

A. I don't think so. I don't know.

Q. Do you mean that if a man gets addicted to the opium habit he just goes along, taking the same quantity day by day?

A. I think that satisfies him, though I do not know. I am not that much experienced.

Q. You are not an expert, then, in the taking of habit-forming drugs, are you?

A. No; I hope I am not.

Q. Is it not true that a man who becomes accustomed to the use of opium will take so much at a single dose, increasing the dose continually, that it would kill a man who was not accustomed to it?

A. Yes.

Q. That is true? And you do not say now you do not think that they continually increase that dose?

A. I presume they do. I cannot give you a definite statement about it.

Q. And would not that same rule apply with all those kindred substances, such as chloral, cacaine and alcohol, —when a man gets the alcohol habit, that he would be continually increasing the amount taken from day to day?

A. I do not think it does apply to alcohol at all?

Q. There are people who drink alcohol in moderation?

A. Yes.

Q. Just take a drink or two in the course of a day, or sometimes a drink a week. Now, there are other people who get the alcohol habit, is that not true?

A. Yes.

Q. And those people who get the alcohol habit want to keep it continually in their system and keep continually under the effect of it, and so they continue to increase the quantity from day to day, is not that true?

A. It is not. They cannot go beyond a certain limit.

Q. How is that?

A. He cannot go beyond a certain limit.

Q. What is the limit, do you think, of the amount of alcohol a man can become accustomed to, with the alcohol habit?

A. I am from the North and I cannot very well tell you. I know very well after a certain limit they become comatose, and that ends it, and they cannot take any more.

Q. Become how?

A. Unconscious; drunk.

Q. Oh, yes; but is it not true that man acquires the alcohol habit,—that a man who acquires the alcohol habit has to take more from day to day in order to experience the effect that he would get from it, that he desires to get from it?

A. Up to a certain point only.

Q. Up to what point now?

A. The point of saturation.

Q. The point at which he gets dead drunk?

A. Yes.

Q. Doctor, do you know the work by Bunge, entitled "Physiologic and Pathologic Chemistry"?

A. I know of it. I am not familiar with it all.

Q. Do you know whether that is a good authority or not?

A. I don't know. That is out of my line and I am not capable of judging it.

Q. On your cross-examination, at the time your deposition was taken, Doctor, were you not asked this question and did not you give the answer as follows:

> "Q. Doctor, you say you are acquainted with caffeine. By what method have you beccome acquainted with caffeine?
>
> "A. By using it as a drug and by observing the effects of a solution, that the solution which we know as coffee, in people."

A. I suppose I did; I don't know.

Q. (Reading:)

> "Q. Its effects as used as a drug and in a so-

lution of coffee?

"A. Yes, use as a drink or beverage, whichever you prefer to call it.

"Q. Are the effects in all three cases the same, Doctor?

"A. Depending entirely upon the amounts that are taken."

A. Yes.

Q. (Reading:)

"Q. I mean of equal amount.

"A. Yes.

"Q. And upon persons in the same condition?

"A. Yes."

A. Yes.

Q. That is all true? Did you testify in that deposition that caffeine was a poison?

A. I don't remember.

Q. Did you testify that it had poisonous tendencies?

A. I don't remember my testimony at all. You will have to read it to me.

Q. Do you remember that you testified in that deposition that salt was a poison?

A. I do not.

Q. I will read you this question: (Reading)

"Q. Your definition of a poison is anything that produces deleterious effects, and therefore salt in large quantities is a poison?

"A. Yes, sir."

A. Yes.

Q. (Reading:)

"Q. And sugar, likewise?

"A. Yes."

A. Yes.

Q. So that both salt and sugar may be poisonous in large quantities?

A. In the sense of producing deleterious effects in the organism; yes.

Q. And that is the definition you give of the word "poison,"—anything that produces a deleterious effect?

A. Yes.

Q. Doctor, are there any substances in tea or coffee that affect the stomach, or might affect the stomach, besides saffeine?

A. Well, we have the oil in coffee. It is not known —

Q. What is that oil and how is it produced?

A. I do not know. You mean how is it extracted?

Q. Yes. By what process does it develop? It develops in the roasting, does it not?

A. Yes.
Q. What is that oil?
A. That is all I can say.
Q. What is the name of it?
A. Empyreumatic oil.— I don't know.
Q. Sometimes called caffeal?
A. Yes.
Q. How does it affect the stomach?
A. I don't know.
Q. Is it not slightly stimulating?
A. I don't know.
Q. Does it not contain what is known as furfol alcohol?
A. I presume so; I don't know.
Q. What is furfol alcohol?
A. Don't ask me.
Q. Coffee also contains tannin, does it not?
A. Small amounts.
Q. And tannin is not very good for the stomach, if taken in large quantities?
A. If taken in large quantities. no.
Q. It also contains tannin, does it not?
A. Small amounts.
Q. It contains considerably more tannin than caffeine, does it not?
A. I believe so.
Q. Suppose a man drinks coffee and his stomach is subsequently irritated, or he drinks it and his stomach is subsequently irritated, you could not say, could you, whether that irritation was due to the caffeine or to the other substances in tea or coffee?
A. I judge so, from the fact that the so-called preparation that is free from caffeine does not have the irritating effect on the stomach.
Q. What preparation free from caffeine do you refer to?
A. So-called caffeine-free. I don't know as I could tell you anything more about it. Merke's Preparation.
Q. Is it not true that those substances are not entirely free from caffeine, but that the amount of caffeine in them has simply been reduced by extracting part?
A. A considerable part, a very large part; yes.
Q. About how much has been taken out of it?
A. I don't know—about,—well, I have not any reason to know what part except from what I have read and heard.
The Court: It appears to me that it is right in the discretion of the Court that when an expert witness has been cross-examined as to a scientific opinion that he has

expressed by the introduction of books giving a contrary opinion, to permit him on redirect examination to give a list of authorities. I think that is fair to the witness. Is there any objection to that on either side—without reading the books, but just to give references?

Mr. Sizer: I would have no objection.

Mr. Miller: We would have no objection. Of course, if your Honor holds to that ruling we will ask our witness who was previously examined ——

The Court: Let us settle that question.

Mr. Miller: I have no objection.

Mr. Sizer: I believe it would be subject to such qualification that if such a list is introduced the opposing counsel would have the right to produce those authorities and show exactly what they do say.

The Court: And if they did not support that fact, then you would have the right to cross-examine as to that.

Mr. Sizer: With that modification I think that would be a very fair rule.

Mr. Miller: We would have no objection to that ruling.

The Court: It may lengthen the proceedings a little, but it seems it is fair to the witness. If you have any such case as that and desire to recall anybody, you may.

Mr. Miller: That applies to Doctor Kebler, as stated this morning.

Mr. Sizer: I think it would be fair for them to submit a list of those authorities, so we will be prepared to cross-examine about them.

The Court: That would expedite matters.

Mr. Miller: We will do that, but as he will be here during the trial, we will not be able to do it to-day, but will do it at least a day in advance of the reintroduction of Doctor Kebler.

RE-DIRECT EXAMINATION.

BY MR. MILLER:

Q. Referring to those students that you say were fortunately placed in a condition or relation in which they would not continue this caffeine habit, state what that condition or relation surrounding them was, Doctor.

A. You mean at the time they took the drug?

Q. At the time when you say they were fortunately placed in such condition that they would not continue the habit.

A. Would not?

Q. Yes; I say, what were they?

A. First, they were relieved of the anxieties of the examination, by either passing or failing. The ordeal was over. Some of them were made to take other remedies. They all had counter-acted the bad effects of the caffeine and some were put at rest, absolutely put in bed and kept there for a time until they got over their nervousness, and the states that had arisen on account of the use of the drug.

Q. That is the drug caffeine. State whether or not those were marked cases of caffeine poisoning that came under your observation.

A. They were very marked cases.

Q. Now, as to this percentage of caffeal or empyreumatic oil that is taken out of coffee in the roasting, you started to say, I believe, that you could only give a statement from your reading of literature on the subject. What is that, approximately?

A. What is the reading?

Q. Yes. I mean, what is the percentage that is taken away in the process of decaffeinizing coffee?

A. I understood about 75 or 80 per cent.

Q. About 75 or 80 per cent.?

A. Of coffee.

Mr. Sizer: He has expressly said he does not know anything about that.

Mr. Miller: Mr. Sizer called that, that he knew there was such a process from reading literature, and knew a percentage of it was relieved and discharged. Now, then, when the witness started to answer as to that percentage ——

Mr. Sizer: I didn't ask him that. I asked him how he could tell whether it was caffeine or these other substances in the coffee that produced the injurious results, and he answered that he had not observed the effect in cases of decaffeinized coffee, and I asked him what part of it was taken out and he said he did not know.

Mr. Miller: Of his own personal knowledge. I submit if there is literature on that subject that he has read, and it is also part of his patient's general history in that connection, that is part of his knowledge.

The Court: That is not a matter of expert opinion.

Mr. Miller: And the patient's statements and the literature on that subject become a matter of fact, and an exception to the rule of hearsay evidence, I understand.

The Court: The exception is sustained.

Mr. Miller: We note an exception.

BY MR. MILLER:

Q. With respect to the quantity taken, and as to which an extract was read from your former deposition, I will ask you whether or not the statement there read, that the toxicity or the toxic effect of any drug, depends on the quantity taken, together with the system of the individual and the condition of the individual at the time.

A. Yes, that is generally understood.

Q. That is true of any poison?

A. Yes, sir.

Q. Did you answer?

A. Yes—yes, sir.

Q. In the proportion that was given in the mixture, a copy of the analysis of which was furnished you, state whether or not the quantity as there given will probably produce, administered to the average individual, an effect —that is, produce a symptom.

A. It would.

Q. And if the quantity—that quantity, produces a symptom, what does that speak or indicate as respects the poisonous character of the drug?

A. That any symptom that is produced by the drug is deleterious.

RECROSS-EXAMINATION,

BY MR. SIZER:

Q. You say the quantity of caffeine as shown by that analysis would produce a symptom. What kind of a symptom would that ordinarily produce in a man of normal health?

A. Probably produce nervousness.

Q. Do you mean to say, Doctor, that a glass of beverage with that quantity of caffeine in it would produce probable nervousness in a man?

A. Not one dose, but the continued use of it.

Q. I was asking now,—you were asked about the quantity of caffeine contained in that mixture. Would a dose, a glass of a mixture containing that proportion of caffeine, produce any symptom whatever?

A. Perhaps not an appreciable symptom. It would produce something, undoubtedly. It would have an effect, undoubtedly.

Q. How do you know it would have an effect, if you did not see it?

A. I would not know it, but they would not take it if it did not have an effect. That is certain.

Q. Suppose a man goes and takes a glass of lemonade;

does that produce a symptom?

A. No, it does not produce a symptom.

Q. It produces an effect?

A. Yes, sir; it produces an effect.

Q. And he takes it because it feels good in his system; is that the reason, it refreshes him?

A. Perhaps so.

Q. That is the kind of symptom you say might be produced by taking a single glass of this mixture?

A. Yes, but it might produce other symptoms, too.

Q. Suppose a man goes and takes a glass of chocolate ice cream, would that produce a symptom?

A. In some persons it would, undoubtedly.

Q. As a general rule, would it?

A. Not as a general rule, no.

Q. It would not be any more apt to produce a symptom than this mixture that you are talking about, would it?

Mr. Miller: I object to the comparative effect. I submit that is not competent.

The Court: The exception is sustained.

BY MR. SIZER:

Q. Do you know what the quantity of caffeine is in a cup of coffee?

A. From one-half to two grains, I believe.

Q. It runs sometimes as high as two and a half to three grains, does it?

A. I believe so. It depends very much on the character of the decoction.

Q. It varies from about one-half a grain to three grains in a cup of coffee?

A. Yes.

Q. And a cup of coffee ordinarily contains about five ounces, does it not?

A. Yes.

Q. Now, a glass of Coca-Cola contains about one and twenty one-hundredths grains, does it not, of caffeine-

A. I believe so.

Q. And that is put in a mixture of about seven to eight ounces, is it not?

A. I don't know—six ounces.

Q. An ordinary soda water glass contains seven or eight ounces, does it not?

A. I suppose so.

Q. Therefore the caffeine in coffee is in the first place in a larger quantity than you would get it in a glass of Coca-Cola; that would be true?

A. Yes.

Q. And in the second place it is more diluted in Coca-

Cola than it would be in coffee, is it not?

A. Yes.

Q. You speak now of caffeine poisoning, the caffeine poisoning of these students of yours. There did not any of them die, did they?

A. They did not.

Q. They all recovered in a few days as soon as they got over the strain they had been undergoing in connection with this examination and the effect of the excessive doses of caffeine which they had taken on account of that strain?

A. Yes.

Q. The two things combined, the nervous strain incident to the examination and the result of the excessive doses of caffeine combined, got them into bad physical condition?

A. Yes. There was a difference in that class from the class that did not take caffeine.

Q. When they took ten or twelve grains of caffeine in a night that would produce serious results?

A. Yes.

Q. And that, together with the nervous strain they were undergoing incident to the examinations, put them in bad physical condition?

A. Yes.

Q. And all you did was just to take them out and give them a little proper medical treatment and they soon got all right again?

A. That is what I stated.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. In answering that one glass of Coca-Cola contains, according to your understanding, only one and twenty one-hundredths grains, that, if I understand you, is on the assumption it contains only one ounce of the mixture you have given there?

A. Yes.

Q. In the analysis?

A. Yes.

Q. If the proportion of such mixture is increased, the quantity of caffeine would be increased?

A. Yes. One grain to the ounce, six grains to the glass.

RECROSS EXAMINATION.

BY MR. SIZER:

Q. Wait a minute. What was that you said about six

grains to the glass?

A. One grain of caffeine to each ounce of Coca-Cola.

Q. You do not understand that Coca-Cola syrup is taken straight, do you, Doctor?

A. I don't know how Coca-Cola is taken.

Q. You don't know that they put about an ounce of Coca-Cola syrup in a glass and then pour in about five or six or seven ounces of carbonated water?

A. I did not know.

Q. You did not know about that?

A. No, I never saw it taken.

Q. You stated it would be six ounces.

A. I beg your pardon then.

Q. When you stated it would be six ounces to the glass, you were going on the assumption ——

A. (*Interrupting*) The pure stuff.

Q. That the glass was full of Coca-Cola syrup?

A. Yes.

Mr. Miller: If it were diluted with water, the same proportion would exist as is shown there in the proportion of the quantity of the mixture put in the glass?

The Witness: Yes.

DR. O. T. OSBORNE,

of lawful age, was produced as a witness by and on behalf of the Government, and being first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. What is your profession?

A. Physician and teacher, medical teacher.

Q. Connected with what institution?

A. Yale Medical School.

Q. How long have you been connected with the Yale Medical School?

A. Since 1888.

Q. What professional connection have you sustained to the Yale Medical School?

A. At first, assistant; then instructor—clinical assistant and then instructor of materia medica and pharmacology. Then as assistant professor, since 1892 professor of materia medica and therapeutics, and for the last five years also of clinical medicine. In other words, teachings of drugs, the action of drugs, the treatment, etc., and caring for patients.

Q. In addition to your teaching and instruction, state

whether or not you have been a practitioner of medicine.

A. The entire time since I finished studying.

Q. How many students are in your institution, Doctor? That is, the medical department, annually, perhaps.

A. It used to average 150, and now since our restrictions we have about 80 or 90.

Q. State if you are connected with the American Medical Association, and if so, in what capacity.

A. I am a member. I am ex-chairman of the section of pharmacology and therapeutics, and I edit the therapeutic department of the Journal of the American Medical Association. I am on the council of pharmacy and chemistry of the American Medical Association, and also on the sub-committee of the council of education.

Q. State whether or not you are acquainted with the substance known as caffeine.

A. I am.

Q. What substance is that, Doctor? What is it, a food, drug or what?

A. It is a drug.

Q. State whether or not it is poisonous in its tendency.

A. It is.

Q. Now, assuming that a mixture be prepared such as that which you have as furnished by Doctor Fuller and which I shall ask you to file as Exhibit No. 1 to your deposition and have the stenographer copy the formula into the record,—can that be served either alone, that is, in the form it is there given or diluted with six or seven ounces of carbonated water—state what would probably be the effect on the consumer, assuming that the consumption was by children, young people and people of robust health, all taken together.

A. The principal action would be the action of caffeine. The secondary action might be of sugar, its effect on the stomach.

Q. What would be the effect of the caffeine as there contained and in the quantity there contained?

A. It would be the action of a medicinal dose as given by the United States Pharmacopoeia.

A. The medicinal dose of the Pharmacopoeia is one grain, and this is more than one grain.

The Court: Is this the same as has already been filed by the preceeding witness?

Mr. Miller: Yes, sir; that is the same one. I only have one copy.

The Court: Let this be filed as one exhibit by one witness, without it being copied each time.

BY MR. MILLER:

Q. Have you any connection with the United States Pharmacopoeia ——

A. I am a member of it. I was chairman of the committee on conventions, pharmacopoeial conventions,; third vice- president of the pharmacopoeial conventions. I am a member of the Revision Committee and a member of the sub-committee on Scope of the Pharamacopoeia.

Q. What do you mean by the Committee on Revision, Doctor?

A. Once in ten years the Pharmacopoeia is revised, to be up-to-date and to be improved by new scientific methods. It is the book that has the method of filling prescriptions written by physicians, by the druggists, of standard drugs and preparations.

Q. And what is meant by a dose of anything, as given in that Pharmacopoeia?

A. That means the average dose which should produce symptoms for an adult.

Q. For an adult?

A. Yes.

Q. In what proportion should that dose be administered to a child or person of immature years?

A. In my own book I formulate this rule for dosage, which is nearly correct for everything except morphine,— in other words, for the age, half the dose; that is, at ten years old, it would he half a grain. A quarter of the age, a quarter of the dose. Five years old would be a quarter of a grain of caffeine.

Q. You say that would produce symptoms in a person of robust health, one grain?

A. That is, it will produce symptoms.

Q. On the assumption that that dosage be taken, either as a syrup or in connection with this mixture that I have indicated, carbonated water—state what would be the noticeable symptoms, either with a child or adult person.

A. In a normal adult the symptoms from one grain might not be noticeable.

Q. Might it be noticeable?

A. It might, depending on his condition or his susceptibility to this kind of stimulation.

Q. Well, now then, as to the other classes of persons after you leave the normal individual.

A. You would get with this dose a more rapidly acting heart; with a lower dose, a slower heart. The blood pressure with this dose would probably not be changed. The mental condition would be stimulated. He would be, if he were susceptible, he would become sleepless if this

dose were taken in the evening. If susceptible, he would pass more urine. If very susceptible, he would have trembling, especially noticeable in the hands. He might become irritable and show signs of what we term nervousness.

Q. What is the effect on human health of those conditions which you have—I mean, those results, which you have described?

A. May I have the question again?

Q. Yes. What is the effect on human health of those results which you have described as obtaining from caffeine?

A. It has been considered harmless, but with the medical men of to-day we consider it serious.

Q. And by serious, what do you mean,—harmless or otherwise?

A. We mean harmless—we mean *harmful.*

Q. Now, leaving the adult and going to the nervous person or the child, state whether or not the conditions you have described would be more or less marked.

A. Much more marked.

Q. What would be the result as respects health in proportion to that of the robust person?

A. The child's digestion would be impaired. His nervous excitability would be increased, and ultimately he would be—his nutrition and growth would be impaired, and he might become and often does become a neurasthenic, and his mentality is interfered with.

Q. Might or not a single dose of the mixture as prepared by this—as shown on this formula, produce marked deleterious effects in a child or nervous person?

A. It certainly will. I have seen it. Not in Coca Cola but from other forms of caffeine.

Q. Is there any neutralizing substance or ingredient in the formula shown you that would prevent the following the harmful or deleterious effects which you have described?

A. There is none.

Q. What do you mean by "neurasthenic?" You have testified as to neurasthenics.

A. A person who is unable to do his ordinary work, who has a very irregular appetite or none, who is sleepless, restless, irritable, and soon may become enemic; low blood pressure; sometimes rapid heart—a generally miserable condition.

Q. Taking one dose of this mixture, either in the form shown on the analysis before you or in connection with six or seven ounces of carbonated water, in the evening—

that is, from six o'clock on until ten, what would probably be the effect on the consumer as respects sleep?

A. The normal sleep of an adult, a normal individual?

Q. Yes, sir.

A. That would depend on the individual. He might not notice any effects, but a large number of people and a growing number of others would be sleepless, or at least not be able to get sleep until several hours after going to bed.

Q. Would it or not interefer with normal sleep? I mean to say, with the sleep that they would normally get but for the taking of this stimulant.

A. That would depend upon the individual, with the one dose.

Q. Now, if sleep be interferred with as you have described, what would be its effect on human health?

A. It would be greatly detrimental.

Q. Suppose that more than one dose—say from two to three or four doses, be taken during the day; would or not the effects of the caffeine therein be cumulative and increased?

A. It will be cumulative.

Q. What would be the resultant effect, at night?

A. He would be more and more sleepless.

Q. How would the dosage of caffeine as administered to an adult compare in effect with, a woman, for instance? You have described an adult. Now, how would that compare in effect with the same dosage given to a woman?

A. She is more mentally excitable than are men, and it would therefore have more effect.

Q. And how would the result compare in effect with a person who is on the outside, engaged in outdoor work, farming occupations and things like that, and those who are engaged in shops, factories and stores, and who are confined to inside work?

A. It would have more effect on the one who is confined.

Q. State whether or not the deleterious results would be greater in that latter class.

A. They would be greater in that class.

Q. I will get you to state whether or not you have had occasion to treat patients who were suffereing with caffeine poisoning.

A. I have.

Q. Many or few?

A. Quite a few students, and quite a goodly number of patients. In fact, there is never a week goes by without treating several who have the coffee and tea habit and

have to have it stopped on account of symptoms.

Q. State whether or not caffeine is a poisonous drug?

A. It is.

Q. Is it or not a habit-forming drug?

A. It is, in my opinion.

CROSS EXAMINATION,

BY MR. SIZER:

Q. Is it your opinion, doctor, as an expert, that people ought not to be permitted to drink tea or coffee?

A. I think that children and young people up to fifteen years of age should not be allowed to drink tea and coffee.

Q. That is, you would advise the parents of young children not to allow those children to drink tea and coffee?

A. I do that.

Q. And when they reach beyond the age of ten or twelve or fifteen years, then you would leave it to the individual to say whether or not he would be injured by the consumption of tea and coffee?

Mr. Miller: I object to what he might do as a matter of Governmental regulation. That is a matter of individual opinion. If he asks him from individual standpoint I have no objection.

The Court: The exception is well taken.

BY MR. SIZER:

Q. I will ask you then if it is not true from the standpoint of an expert witness that the extent to which an individual who has reached the years of discretion should use tea and coffee should generally be left to his own discretion.

A. Generally is a very broad term. I would not generally leave it; I would see what it did to them, to that young growing individual, or I would see what it did to the normal individual. Generally normal individuals, otherwise normal, come to us and we discover that it is tea and coffee that is causing them to be sleepless, with those results.

Q. If a patient comes to you for treatment and you discover from his symptoms that he is taking too much tea and coffee, then you would advise him, and when you advised his in a majority of cases he stops it, does he not?

A. Yes.

Q. But in a great many cases patients come to you who drink tea and coffee whom you do not advise to stop tea

and coffee, is that not true?

A. Sometimes that is true of tobacco.

Q. I did not ask you about tobacco. Confine youself, please, to the question. Is that not true, Doctor?

A. Yes.

Q. Do you use coffee yourself?

A. Yes.

Q. How much?

A. One cup a day.

Q. Any more than that?

A. Rarely.

Q. How long have you been using it?

A. Always.

Q. You have always used it at the rate of one cup per day?

A. Since I was a child. I do not know the age.

Q. You have experienced no uncontrollable desire to increase the quantity from time to time?

A. I have recognized the stimulation of it and had to stop it, at nights.

Q. You mean that the cup of coffee that you take for breakfast in the morning stimulates you so much at night that you have to stop it?

A. No, I didn't say that.

Q. You mean then you used to take it at night?

A. Used to take it at dinner.

Q. How much did you take at that time, one cup?

A. A demi-tasse, a small cup.

Q. Did you ever drink any more than a cup of coffee for breakfast and a cup at night?

A. Sometimes two cups in the morning, small cups.

Q. Sometimes one large one?

A. Sometimes one large one.

Q. And you have done that for about how many years?

A. I don't remember the age at which I began.

Q. What is your age now?

A. Forty-eight.

Q. Did you begin pretty young?

A. I don't know—no.

Q. You kept it up at that rate for a number of years, say twenty-odd years?

A. Easily.

Q. Do you drink tea?

A. Yes.

Q. How much tea do you drink?

A. One cup or less a day.

Q. What time of day do you drink it?

A. Noon.

Q. Do you ever drink any in the afternoon,—afternoon teas?

A. Very rarely.

Q. You do sometimes?

A. I sometimes have to.

Q. Do you drink any chocolate?

A. Occasionally.

Q. Chocolate has caffeine in it?

A. Not to be noticed. I do not believe for one minute that the caffeine in a cup of ordinary chocolate has any caffeine action whatsoever.

Q. Do you know how much caffeine there is in the ordinary cup of chocolate?

A. Never more than a quarter of one per cent at the most, possibly. I do not think it has ordinarily as much as that. Bearly a trace.

A. About a quarter of one per cent?

A. Not as much as that, ordinarily.

Q. You would call that, now, a small proportion, would you not, in any mixture, a quarter of one per cent.?

A. I call that the outside limit in chocolate.

Q. How is that?

A. I call that the very outside limit of possibility in chocolate.

Q. I say you would call that a very small percentage of caffeine in any mixture.

A. If I thought chocolate always had that in it, I would never allow children to have it.

Q. Just answer the question. You said it had a very small proportion in it, didn't you?

A. May I change that to a trace?

Q. A trace?

A. A trace.

Q. And that trace, you say, is about one-quarter of one per cent?

A. I do not think that chocolate, as made, has anywheres near a quarter of one per cent.

Q. Did you not say a while ago that you thought it had about a quarter of one per cent?

A. No; I said that would be the outside limit that it could have — that it could have.

Q. Is it not true that the authorities state that some forms of chocolate, for instance the cocoa infusions contain as high as seventy-three hundredths of one per cent, or about three quarters of one per cent?

A. Chemically, undoubtedly that is true. As a food product, when the child receives it, it is not true.

Q. Do you feed it to children a great deal up in that country?

A. Chocolate?

Q. Yes.

A. Certainly.

Q. In the form of candy?

A. Not much candy, if we can help it.

Q. Ice cream, or hot chocolate; which particular form?

A. Probably hot chocolate, as a food.

Q. You feed it to children up there as a common thing, do you?

A. I think too much.

Mr. Miller: Wait a moment. Of course, I do not object to that, but I do object to further inquiry on the subject of chocolate.

The Court: I sustain the exception.

Mr. Sizer: May it please your Honor, we have shown, I think, that chocolate has, and he says it has, some caffeine in it.

The Court: He says a mere trace.

Mr. Sizer: One other witness says it might run as high as one-fourth of one per cent.

The Court: You can develop that later. As long as the witness says "A mere trace," I am going to limit it.

Mr. Sizer: I call you Honor's attention to the fact that this witness says it might have as much as one-quarter of one per cent. This Coca Cola syrup has less than that, only one and twenty-hundredths of one per cent. That is the extreme analysis. Their analysis shows only sixteen per cent. of one-hundredths.

The Court: The exception is sustained. Whenever you gentlemen are prepared to show the actual constiuents of chocolate, I will rule on the question.

The Witness: May I make an explanation?

The Court: You may make any statement you desire.

The Witness: I believe that the oil in chocolate would prevent any caffeine action whatsoever from a cup of chocolate.

BY MR. SIZER:

Q. Now, Doctor, there is another alkaloid in chocolate besides caffeine?

A. Yes.

Q. That is theobromine?

A. Theobromine.

Q. Is it not almost identical in its action with caffeine?

A. No.

Q. Wherein is the difference?

A. It has no stimulation effect on the nervous system whatever.

Q. Theobromine has not?

A. Theobromine has not, in my opinion.

Q. On what do you base that opinion?

A. I base that opinion on the recognized authorities with which I am familiar.

Q. Can you state any authority that says theobromine has no stimulating effect on the nervous system?

A. I am not aware of any authority that says it is a stimulant to the nervous system.

Q. That is not what I asked you. Are you of any authority that says it has no stimulating effect?

A. I can tell you what I think. I have not seen his books lately.

Q. I did not ask you that. I just asked you to refer to the authorities.

A. I think Cushny, Brunton, Hare, Wood, Potter, Butler, and Sollmon. As my memory serves me, I think they all say theobromine does not act upon the nervous system as does caffeine.

Q. What is the difference, chemically, between theobromine and caffeine?

A. One is bimethylxanthine and the other is trimethlxanthine, caffeine being the latter.

Q. What is the difference chemically, the chemical constituents?

A. I cannot answer that. The difference is mostly in the hydrogen milecules. Your formulas are right there in Cushny—the hydrogen atoms.

Q. You never had any experience with the use of Coca Cola at all?

A. No.

Q. You only know of the effect from its use in tea and coffee, and as administered medicinally?

A. Yes.

Q. You do administer is medicinally for certain diseases?

A. I do.

Q. Now, you say that the dose prescribed by the Pharmacopœia is one grain, Doctor?

A. Yes, if my memory is correct.

Q. Is it not expressly stated now in the preface to the Pharmacopœia in treating of and discussing the question of these approximiate doses, that "Neither this Convention nor the Committee of Revision, created by it, intend to have these doses regarded as obligatory upon the physician, or as forbidding him to exceed them whenever, in his

judgment this seems advisable," and further, "It must be recognized that the dose of a drug or preparation can never be regarded as a fixed quantity. The age and condition of a patient must always modifq what is known as an average dose, but the doses which has been inserted, are intended to furnish a guide to those who are inexperienced in prescribing, or who desire to use a drug, or preparation with which they are unfamiliar."

That is a correct quotation, now, from the preface of the Pharmacopœia.

A. Yes, but that average dose is decided by a scientific body of men employed and requested to furnish just that testimony.

Q. And the fact is, that is what they fix as the minimum dose.

A. No, that is the average dose.

Q. Do you not exceed that minimum dose?

A. That is not the minimum dose; that is the average dose.

Q. Do you ever exceed that average dose, then?

A. Yes.

Q. Do you ever go below it?

A. Yes.

Q. In what cases?

A. In children and in susceptible individuals, in individuals who are easily impressed by it.

Q. That is when you are administering caffeine as a medicine, is it not?

A. Yes.

Q. And the Pharmacopœia, of course, only deals with caffeine administered as a medicine. As a matter of fact, caffeine is taken much more in food, or in food products, than it is in drugs, is it not?

A. With beverages; not as a food.

Q. Well, in beverages?

A. Yes.

Q. And these beverages are classed as foods under this law, of course, then they would be taken as foods.

The Court: Until that fact is disputed, you need not introduce any further evidence to show there is more caffeine consumed in tea and coffee than in anything else.

BY MR. SIZER:

Q. You say, is a drug. That depends on whether it is taken as a drug or not, does it not?

A. Caffeine always acts as a drug, everyway it is taken.

Q. What do you mean by a drug?

A. A drug that will produce symptoms.

Q. What do you mean by smptoms?

A. Or will produce activities in the human body.

Q. Will not anything that you take have some kind of activity—produce some kind of effect in the human body?

A. Yes, sir.

Q. In substance, then, anything is a drug?

A. Not in that sense. They may be nutriments.

Q. Anything, you say that produces an effect in the body is a drug?

A. To have abnormal activity, perhaps I should have put it.

Q. What do you mean by abnormal activity?

A. Activity that is not needed by the body.

Q. Then, if you take too much of anything and produce an effect that is not needed, that is a drug; is that right?

A. Please read that.

(Thereupon, the stenographer read the pending question.)

A. No; not necessarily.

Q. Under your definition it is, is it not?

A. My definition then was imperfect.

Q. You definition was not the correct one, then? Then what is the correct definition of a drug? Is not this it, Doctor: "A drug is a substance taken to produce a medicinal effect?" Is not that a correct definition of it?

A. That definition, the Revision Committee is still working on, as to what a drug really is. My opinion of a drug is that it is not a drug because it is used. A drug is something that must do something to the system.

Q. Then, anything which does something to the system is a drug?

A. —and is used medicinally.

The Court: What is the materiality of this, Mr. Sizer?

Mr. Sizer: He just talked about caffeine as a drug. I want to know what he means by that statement. He is an expert.

The Court: Then just ask him that, without going into the definition.

BY MR. SIZER:

Q. Why do you say, then, that caffeine is a drug?

The Court: What do you mean when you say it is a drug?

Mr. Sizer: Yes.

The Witness: Because it is listed in the Pharmacopœia as a drug; because every book on Materica Medica states that it is a drug; because it is used therapeutically as a

drug; because it is used in the treatment of diseases as a drug.

BY MR. SIZER:

Q. Everything then, which is named in the Pharmacopœia is a drug, is it?

A. That is a book of drugs.

(Thereupon, at twelve o'clock, noon, a recess was taken until twelve-twenty o'clock P. M. the same day.)

AFTER RECESS.

The court met pursuant to recess at 12:20 o'clock p. m.

O. T. OSBORNE,

resumed the stand for cross examination:

CROSS EXAMINATION CONTINUED

BY MR. SIZER:

Q. You were proceeding to state doctor why it was you say caffeine was a drug. I believe you stated it was because it was in the pharmacopœia?

Mr. Miller: Not altogether that.

The Witness: You want me to repeat that?

BY MR. SIZER:

Q. Did you say that?

A. That was not the whole of my answer; because I said it was in the text books, because listed as a drug and described as a drug in all text books on materia medica and pharmacology and because it is used for medical purposes.

Q. Then a thing that is used for medical purposes would be a drug?

A. Caffeine always is a drug.

Q. Now, isn't it true that a drug is simply a substance used for medicinal purposes?

A. Yes sir, that is true in the ordinary acceptation of the term.

Q. For instance water is down in the pharmacopea as a drug?

A. It is unfortunately.

Q. And salt?

A. It is.

Q. Ginger?

A. Yes.

Q. Soda?

A. Yes.

The Court: That is enough.

BY MR. SIZER:

Q. On the other hand they are all used for other purposes than drugs?

A. You are stating the pharmacepea and in materia medicas —

Q. (Interrupting) Well now what materia medica —

The Court (Interrupting) I don't think the question of the accurate definition of a drug or food is material except in order to get at what this witness means by the word "drug."

Mr. Sizer: What I am trying to get at is not properly termed a drug except when used as a drug?

The Court: Just get at what he himself calls it, why he calls it a drug.

BY MR. MILLER:

Q. Are you familiar with the work by Tyrold Sollman, entitled a text book of Pharamacology, including Therapeutics, Materia Medica, etc?

A. I don't know the book—I am not familiar with the last edition.

Q. It is recognized as a standard authority?

A. A good authority.

Q. A good authority you say?

A. Yes, sir.

Q. I will read you now from the book (page 171) of Sollman's work and ask you if you agree with him (reading):

> "Coffee and tea are used principally as beverages, and to relieve psychical and physical fatigue. They may in some cases be substituted for caffeine in therapeutics, although their effects are not quite identical with those of the alkaloid. The differences are due to the other constituents."

And now further:

> "The differences between the caffeine beverages and the alkaloid consists therefore in a greater psychic and respiratory stimulation, by the oil; a greater diuretic action from the water; a comparatively lesser action on heart and muscles, a tendency to derange digestion, by the caffeol of tea tannin; and a laxative action with coffee."

A. Well, it is rather too long to carry the whole of that —I don't know whether I can say that I agree with the whole of that.

Q. I hand you the book and will let you read it your-

self doctor. It is this clause (indicating on book) down here, the one that I am after?

A. (After examining book) I agree with that.

Q. You agree with that?

A. Yes, sir.

Mr. Hiller: What page was that?

The Witness: At page 171.

BY MR. SIZER:

Q. Now, does not Mr. Sollman further say that the toxicology of caffeine is unimportant. Do you agree with that statement?

A. I do not.

Q. Do you agree with this further statement, that caffeine in moderate doses does not seem to be noxious with habitual use?

A. I agree with that when—no, I do not agree with it.

Q. You think that caffeine in moderate doses does become noxious with habitual use?

A. I think caffeine even in moderate doses does more or less harm to all except a few individuals.

Q. For instance, the taking of one cup of coffee and tea over a period of twenty odd years is known to become noxious?

A. I think tolerance is often lost to it.

Q. And, suppose now over that period of years you took one cup of coffee and tea or a cup of tea, you think the caffeine in tea and coffee combined taken over that period of years tends to become noxious with use?

Mr. Miller: I can't see the relevancy of that. Our object is not to object to anything that will convict us of error but I do submit that is wholly foreign to this controversy.

The Court: I think he is trying to show the effects of the daily use of caffeine in coffee and tea, and I think that is competent.

The Witness: Sollmon says other things in that same text.

BY MR. SIZER:

Q. But I am asking you about that particular statement, and about that particular edition—now you are of the opinion that the moderate use of caffeine as by the taking of one cup of coffee and one cup of tea per day over a series of twenty odd years individuals so using it become noxious with that kind of use?

A. I think it certainlly does.

Q. That is your personal experience with it, is it?

A. My experience in observation and professionally, clinically.

Q. How about your experience on yourself?

A. I find I am better off without the use of tea and coffee.

Q. But you have been drinking it in that same quantity for a number of years, twenty odd years?

A. That might be my only bad habit.

Q. You also use tobacco?

A. Not now.

Q. Is it true doctor that the effect of caffeine is not prolonged and is not followed by depression?

A. The action of caffeine is followed by depression.

Q. In all cases?

A. I don't think anyone can positively answer that.

Q. Now then referring again to the authority of Sollmon he says that the effect of caffeine is never prolonged but is not followed by depression. Are you prepared to dispute or disagree with that?

Mr. Miller: I object to that. He says he says so and so —I ask to have the text book read.

The Witness: Dr. Sollmon does not see patients.

BY MR. SIZER:

Q. Do you agree or disagree with that statement?

A. I disagree with that statement.

Mr. Miller: I object to until he has shown he has stated it.

The Court: Then the answer is excluded.

BY MR. SIZER:

Q. You stated that caffeine is a poison?

A. Yes, sir.

Q. What do you mean by poison in that sense? Why do you say it is a poison?

A. Because certain doses of it given to animals kill animals and cause poisonous symptoms in human beings, and perhaps kill human beings.

Q. Did you ever know of a human being being killed by any amount of caffeine?

A. I do not personally.

Q. You say in excessive doses. It is only poisonous in excessive doses, is that correct?

A. I don't know as I used the word excessive.

Q. Is that true or not?

A. Please let me have that —

Q. Read him the question, Mr. Hacker. (Question read to witness.)

A. Is what true or not?
Q. That is is poisonous in excessive doses?
A. It is poisonous even in large doses.
Q. What do you call a large dose?
A. Five grains I would say cause symptoms of poisoning I have seen symptoms from even one grain, from the action of it.
Q. In what kind of a case did you see symptoms from one grain of caffeine, caffeine straight, caffeine administered as caffeine?
A. As caffeine.
Q. Without being administered in any beverage?
A. Yes, sir.
Q. Was that an unusual sort of case?
A. An unusual sort of action of it.
Q. And it was a very unusual case?
A. To note poisoning symptoms from one grain.
Q. What kind were those poisonious symptoms?
A. Sleeplessness and irritability of the heart, great excitement and nervousness.
Q. Is sleeplessness a poisonous symptom?
A. It may be a symptom of poisoning.
Q. And it may not be a symptom of poisoning, may it not?
A. Sure.
Q. What was the trouble with the patient that you gave that one grain to?
A. Slightly disturbed heart action.
Q. What was the age of the patient?
A. A young woman, I forget the exact age.
Q. With a disturbed heart action?
A. Yes, sir.
Q. And she came to you to be treated as a patient?
A. Yes, sir.
Q. What was the matter with the heart action?
A. There was a valvular murmur, a slight decreased urination, amount of urine was decreased.
Q. Now, doctor, most any substance is poisonous if taken in a large quantity or quantities?
A. I don't think we could call water a poison.
Q. You could eat too much meat and get deleterious results from it, could you?
A. Yes, you could.
Q. And you might under certain conditions eat a tomato and get a deleterious result from it?
A. Yes, you could have something wrong in it.
Q. Suppose it is a good tomato, and you happen to have something wrong with you, you could get a delterer-

ious result from it?

A. But that could not be laid to the good tomato.

Q. The deleterious result would be due to the condition of the person taking it.

A. And not to the tomato.

Q. And not to the tomato?

A. Under those circumstances.

Q. So that it is true that any substance you take into the body if taken in excess, in too large quantities, will result deleteriously?

A. Yes, sir; but we note idiosyncrasies against certain drugs. A normal dose of a certain drug may produce abnormal symptoms.

Q. Well, doctor, there is a distinction between deleterious substance and deleterious results arising from the improper use of proper substances?

A. Yes, that is true.

Q. Doctor, you say that caffeine is habit forming substance—do you mean that the moderate use of caffeine in beverages tends to form habit in any way allied to opium, morphine, cocaine habit?

A. It is a habit forming drug but not as intense and serious as those more serious acting drugs.

Q. It does not, as generally used, increase the desire for additional quantities of the substance?

A. Not as these more vicious drugs.

Q. People acquire the habit of doing anything they are accustomed to do?

A. They become habitual; not necessarily habit.

Q. Become habitual, but not a habit?

A. Yes, sir.

Q. Then it may become habitual with a man to eat certain things at certain times?

A. Yes, sir.

Q. You say you would not call that a habit?

A. No.

Q. It might become a habit with a man to drink a cup of coffee and tea?

A. I will call that a habit, yes sir, because he cannot substitute anything else for it except caffeine or some other caffeine stimulant or something in its place.

Q. Now if he becomes accustomed to using certain things—say eggs for breakfast, he would rather have eggs than anything else?

A. He might mentally.

Q. And that would become a habit to that extent?

A. He could satisfy that with any other good.

Q. And a thing may become habitual with a man with-

out his forming a habit?

A. Yes, sir.

Q. Is it true that the term habit-forming as technically used is applied to these drugs, such as alcohol, morphine, opium and these other substances I have asked you about which in the first place create a very strong desire, and in the second place substance has to be taken in continually increasing quantities?

A. That is not necessarily true.

Mr. Miller: He has asked him about how it is technically used—I didn't ask the witness to state the habit-forming technically, but asked the witness whether caffeine was habit forming.

The Court: I think the only scope of the inquiry is to find out what this witness says he means by habit forming. To that extent it is competent and beyond that it is not.

BY MR. SIZER:

Q. Now, I want to read you a list and ask you if this does not include everything that is generally known and termed to be habit-forming drugs or substances (reading) alcohol, morphine, opium, cocaine, heroin, alpha or beta eucaine, cholorform, cannabis Indica, chloral hydrate, or acetanelid, or any derivative or preparation of any such substances contained therein?

A. That does not include them all.

Q. What others are there not named in that list that are generally known as habit forming drugs?

A. Nicotine, and I would add, caffeine.

Q. But nicotine is a substance that is not taken as food?

A. No sir.

Q. Nicotine is the alkaloid found in tobacco?

A. I say tobacco—change that to tobacco.

Q. And in addition to that you say caffeine.

A. Yes sir.

Q. Now, Doctor, do you know of any authority that sustains you in the proposition that caffeine is a habit-forming substance or drug?

A. I cannot give you the names of any materia medica that states that it is a habit forming drug at this moment but the literature will show and name a great many medical writers who have observed nervous patients and persons generally who care for patients that coffee and tea, and the only active principal of that is caffeine, is habit-forming. Personally I do not believe acetanilid a habit-forming drug—I believe it is the caffeine in the headache

powder that makes people take repeated doses of them.

Q. A great many headache mixtures that do not contain any caffeine though?

A. A large number do, and I think they are the most popular.

Q. But the question is a great many of them do not?

A. A large majority of them have caffeine in some form.

Q. Are there great many that do not have caffeine in them?

A. I do not think so.

Q. Are there any that do not contain caffeine? Are there any that do not contain any coal tar derivative?

A. Well most of them do.

Q. But in fact all of them do not?

A. Possibly—you mean headache things?

Q. Yes.

A. Only headache things ——

Mr. Miller: What is your answer, what do you mean to be understood as saying

A. I stated headache medicines so-called nostrums or patent medicines probably all contain coal tar products but caffeine medicines do not contain coal tar ——

BY MR. SIZER:

Q. There are a great many patent medicines that contain sugar? Are there not?

Mr. Miller: That is immaterial.

The Court: Yes.

BY MR. SIZER:

Q. Now, Doctor, was your deposition taken in this case at New Haven some months ago?

A. Yes sir.

Q. Now, in that deposition I will ask you if this question was not asked you and did you make this answer, and if you still assert that it is true?

The Court: Does this contradict anything that the witness has stated?

Mr. Sizer: I think so.

BY MR. SIZER:

Q. Now the question was: "Q. Would the effect of caffeine as taken in tea ond coffee be the effect of the similar amount of caffeine taken in water."

A.. Well, I don't think so—

Q. But didn't you answer it this way: "If the caffeine was taken with hot water and a few aromatic oils as oc-

Volume II.

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1915.

No. 382.

THE UNITED STATES, PLAINTIFF IN ERROR,

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT, AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

FILED JULY 14, 1916.

(24845)

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curs in coffee it would be absorbed as quickly and have the same effect?"

A. That is all right.

Q. Now, you were speaking of the analysis, or I will first ask you, you were submitted an analysis of the coca Cola syrup awhile ago?

A. Yes sir.

Q. Would there be any difference in the effect of caffeine as contained in that mixture and a similar amount of caffeine as contained in coffee?

A. In my opinion, yes.

Q. Now, didn't you answer that question in this way in your deposition heretofore taken: "I see no difference between a glass of coca cola with simple things except caffeine and a half a cup of coffee which represents about a grain of caffeine."

A. I think there would be more caffeine action when it was not combined as it is in coffee or tea.

Q. Now, Doctor, is this the answer as given to that question before you: "I see no difference between a glass of coca cola with simple things, except the caffeine, and a half cup of coffee representing about a grain of caffeine."

A. Perhaps I did not digest the question; I think caffeine if free acts as caffeine, but in combination at the same time with the empyreumatic oils, or surrounded by tannin in tea, I don't think it would be as rapidly absorbed, and therefore I do not think the action would be as intense.

Q. Now, don't you know that caffeine is free in coffee when taken as a beverage?

A. Yes, but the other surroundings impede its absorption.

Q. But I am taking caffeine with another stimulant, to-wit: caffeine, both free, would the action be any less because it is taken with that additional stimulant?

A. That would depend upon the condition of the stomach—most any oil impedes absorption in the stomach.

Q. Do you know what this oil of caffeal is?

A. It is an aromatic.

Q. It is a stimulant itself?

A. Any aromatic oil is a slight stimulant in the way of causing indigestion in the stomach—

Q. And therefore you would get when you take coffee the stimulation of this caffeal in addition to the stimulation of the caffeine?

A. Do you mean a stimulation of the stomach? The intestines or of the brain?

Q. Well, just any kind of stimulation, you get stimula-

tion of some kind?

A. That is too broad a term, that word "stimulation".

Q. Does it stimulate the stomach?

A. It causes a greater blood supply to the stomach. It may obviously interfere with the production of hydrochloric acid.

Q. Is this true that when you take a hot drink it is absorbed more quickly and the effect more powerful than when you take a cold drink, the contents being the same?

A. Well, that depends on what the hot drink contains.

Q. Well, suppose you take a hot drink containing caffeine and a cold drink, would the caffeine be more quickly absorbed in the hot drink than in the cold drink?

A. It will.

The Court: Is there any dispute about that proposition?

Mr. Miller: None provided the contents are the same—

The Court: It will be absorbed more quickly and act more strongly when hot than cold? That will be conceded.

Mr. Miller: Assuming that it is taken under like conditions. I believe that is a fact, if taken under like conditions, doctor?

The Witness: Yes.

BY MR. SIZER:

Q. Now, were you asked this question on direct examination—I believe though I cannot ask you that—it is offered for the purpose of contradiciting what he says on the subject of the difference between coffee and coca cola?

The Court: Former statements which are contradictory statements may be asked.

BY MR. SIZER:

Q. I will ask you if you were not asked this question, and if you did not give this answer in your deposition you gave at New Haven in this case: (*reading*) "Dr. Kebler repeated to you the different ingredients in the mixture or compound that is known and generally sold as coca cola, and as manufactured by the Coca Cola Company, of Atlanta, Ga. Is there anything in that mixture that would make its effects, the effects of caffeine, any different from the effects of coffee, provided that the caffeine is of equal quantity?" And your answer is: "I see no difference between a glass of coca cola with simple things except caffeine, and a half cup of coffee which represents about a grain of caffeine".

Now were you not asked that question by Mr .Miller in

your deposition—I mean on cross-examination, and did you not give that answer to it?

Mr. Miller: I object to that because not contradictory of anything he says here ——

The Court: The exception is over-ruled; You may ask the question,

BY MR. SIZER:

Q. Were you asked that question on that examination and did you give that answer?

A. I was asked several questions—you just read it to me before I give my answer to it—(The question was read to the witness.)

The Court: Now the simple question is, whether you were asked that question and made that answer, that is the full question.

The witness: I certainly did make that answer.

BY MR. SIZER:

Q. Now then ——

The Witness: (*Interrupting*) May I qualify that?

The Court: Yes.

The Witness: At the time of that deposition I had no idea in any manner or shape what you were after. I supposed it was to be boric acid. I had given the subject no consideration whatever. I had not considered the exact constituents for a moment of coffee and tea, except as we know more oil in coffee, and that there is tannin in tea. I had not considered the possibilities of the rate of absorption or the activities, therefore I answered no, and now I state I think there is a difference.

BY MR. SIZER:

Q. What do you now say?

A. I do not think that one grain of caffeine in that amount of coffee will act as quickly or actively as one grain of caffeine in solution.

Q. Now the question is, what is in the coffee that will in any way effect the action of caffeine?

Q. How do the empyreumatic oils affect the action of the caffeine?

A. I think the empyreumatic oils will impede the absorption.

Q. Now, on what do you base that statement?

A. I base it on the fact that the same dose of caffeine as a drug, administered as a drug, has more action than a cup of coffee containing the same amount of caffeine.

Q. Now, doctor, you administer caffeine as a medicine to a sick man don't you?

A. It is true.

Q. And the action of a drug on a sick man would naturaly be more potent than on a well man, would it?

A. Not necessarily, may be much less potent.

Q. If you administer caffeine to a man who is sick to produce medicinal effect, does it not generally have a stronger effect than it would if you gave it to him in a beverage?

A. Caffeine?

Q. Any drug?

A. That is not necessarily true.

Q. Now, on that proposition were you not asked this question on your examination in New Haven and didn't you give this answer to it: "Is the effect of caffeine in healthy individuals and unhealthy individuals the same? Now your answer: "It is intensified in certain kinds of diseases, unhealthy in its action."

A. It is intensified in certain diseases and diminished in others.

Q. What kind of diseases be intensified in?

A. In mental irritations, hysteria, neuresthenia, irritable heart, in bad digestion, in defective kidneys.

Q. In other words it would be intesniified in the kinds of diseases you would give it for?

A. Not necessarily.

Q. Would you give caffeine for that kind of disease?

A. No, sir. I might give it for the heart.

Q. (*Interrupting*) Now to get back to this caffeal proposition—the empyreumatic oil—in what way could that possibly retard the action of the caffeine?

A. It is only a question of absorption.

Q. Do you know or have you any reason to say as an expert that the empyreumatic oil is absorbed any less rapidly than caffeine?

A. That is a matter of opinion and observation; I do not know it chemically.

Q. You don't know it?

A. No sir.

Q. What is there in tea that in any way retards absorption of the caffeine?

A. The tannin.

Q. And in what way does that retard the absorption of the caffeine?

A. Any tannin like solution will interfere with absorption in the stomach.

Q. Now, as a mater of fact you know that caffeine is free in tea?

A. Yes.

Q. You mean now that the tannin retards the absorption of the caffeine and that tannin is more slowly absorbed than the caffeine?

A. Tannin is absorbed, very little of it.

Q. And caffeine is absorbed more rapidly than tannin?

A. Very much more—tannin is hardly absorbed at all, but tannin retards absorption, food included.

Q. In what part of the alimentary canal does the absorption of caffeine take place?

A. In the stomach and small intestines.

Q. Where is the greater part of it absorbed?

A. I can't answer you that but most drugs are absorbed in the upper intestines.

Q. Have you any reason to testify as an expert, and do you say as an expert that caffeine in tea is absorbed less rapidly because of fact it has tannin in it?

A. The more tannin in the cup of tea the less rapidly would caffeine be absorbed from the stomach.

Q. Yet you say now caffeine is entirely free from the tannin in the tea?

A. Yes sir.

Q. And not combined with it in any way?

A. No sir.

Q. Is it absorbed more rapidly in cold tea or in hot tea?

A. In hot tea of course.

Q. You say now that the pressure of any oil will retard the absorption of caffeine in a drink?

A. Oil will retard the absorption of anything.

Q. Unimportant aromatic oil?

A. Yes sir, anything, food products.

A. No sir, it is not.

Q. And you say that because it is oil it will retard the absorption of caffeine, aren't you mistaken about that?

A. It is an oil, well, it is not really an oil—it is one of the ethereal oils.

Q. It contains what you call furfol alcohol?

A. Yes sir.

Q.That is a form of alcohol?

A. Yes sir.

Q. That is not an oil?

A. Too much alcohol will interfere with the digestion.

Q. Isn't alcohol rapidly absorbed?

A. It depends upon the time that is is taken and the condition of the stomach into which it is taken.

Q. And the rapidity with which anything is absorbed depends upon the condition of the stomach at the time it is taken.

Q. Other things being equal is alcohol a substance

that is absorbed with rapidity?

A. Taken on an empty stomach.

Q. Anything absorbed more rapidly on an empty stomach than on a full stomach?

A. Much alcohol will interfere with the stomach digestion.

Q. Now, I didn't ask you that.

A. If it don't digest it won't absorb.

Q. But other things being equal alcohol is more rapidly absorbed than other things?

A. Yes sir.

Q. More rapidly absorbed than oil?

A. Yes, much more.

Q. Do you know how much of this empyreumatic oil there is in a cup of coffee?

A. Approximately a half teaspoonful.

RE-EXAMINATION,

BY MR. MILLER:

Q. Doctor, if the user of tea and coffee in which caffeine is found should increase the amount of caffeine taken daily in his coffee and tea by the consumption of coca cola according to the formula as passed to you, state whether or not the resulting effect in your opinion would be harmful or otherwise to health?

A. It would be harmful on account of the piling up of the caffeine in the system.

Q. Now, you were only asked as to one portion of a paragraph in Dr. Sollmon's Work, appearing on page 172, where it was stated that caffeine in moderate quantities does not seem to become noxious with habitual use. I will ask you if there does not follow in this same connection: (*reading*)

> "When the amount taken is too large it presents the same symptoms in persistent form which are seen in acute poisoning, tremors, nervousness, palpitation, etc. The mind also seems to suffer and chronic melancholia is a frequent phenomenon."

Mr. Sizer: That is not bearing on the question I asked him—I asked him as to the moderate dose.

Mr. Miller: Does that appear in the same paragraph and as a part of the text?

The Witness: Yes.

Mr. Sizer: That is treating of caffeine taken in excessive doses. I didn't ask him about the effect of it in excessive doses—I tried to limit his testimony to that very

point. I was only asking him about the effect of it taken in moderate doses.

Mr. Miller: They proved it has been, or we proved that it has been taken in excessive doses, in very many instances, that it was a habit-forming drug, and in that same connection I assume that we have a right to have what this author says on that subject.

The Court: He was cross-examined simply on the one question, he was confronted with authorities simply on the one question of the effect of caffine in moderate doses; he was not confronted with any authority on the question of caffeine in large doses. I don't think the question competent; I do not think his being cross-examined as to an authority on one point justifies his testifying to other points he was not cross-examined on.

BY MR. MILLER:

Q. What do you understand the writer to mean there by the term "moderate dose"?

Mr. Sizer: I object to that.

The Court: Unless the term "moderate dose" has some technical scientific meaning ——

Mr. Miller: I think it does.

The Court: Then you may ask him.

BY MR. MILLER:

Q. I ask you whether or not the term "moderate dose" as given in these text books has a well understood and scientific meaning by the medical profession and if so tell what it is?

A. A Moderate dose is a dose that we consider small.

Mr. Sizer: I object to that.

The Witness: In other words the dose of the pharmacopiae would be a moderate dose, that is one grain of caffeine.

BY THE COURT:

Q. You mean moderate dose as prescribed by the pharmacopea?

A. No, not necessarily.

Q. Has it and different meaning in medical work than it has ——

A. (*Interrupting*) It means a dose a little above what is put as the minimum dose.

Mr. Sizer : He don't answer your Honor's question. He has not shown any technical meaning of the word however.

The Court: The witness says that it means a dose a

little above the minimum. Do you mean to say that is the technical way in which the word is used?

A. That would be generally understood, not what term a large dose a little above the minimum dose.

Mr. Sizer: That is the ordinary meaning of the word "moderate."

BY MR. MILLER:

Q. Is that or not the way in which it is generally interpreted and understood by the medical profession?

A. It is.

The Court: I overrule the exception; I do not think it changes the use of the word very much, and don't think it very material one way or the other.

BY MR. MILLER:

Q. State whether or not it is true that caffeine in your opinion as used in a beverage or in the mixture as shown on this formula that you have exhibited, or that is served in the beverage of six to eight ounces of carbonated water would be considered a deleterious ingredient?

A. I think so.

Q. From a hygiene standpoint?

Mr. Sizer: I object to that because that is a matter in cheif that has already —

Mr. Miller: (Interrupting) I didn't ask about it. Mr. Sizer asked this witness if there was any distinction between a deleterious substance and deleterious effect, and rather, as I thought, left the confused idea before the jury, and I ask him now whether or not he considers this deleterious ingredient served —

The Court: (Interrupting) Is the only ground of objection that it is matter in chief?

Mr. Sizer: And that it has already been gone into.

The Court: It is overruled.

Mr. Sizer: It is a leading question furthermore; he has already gone fully into all the effects of caffeine, and I have cross examined him on it, and now Mr. Miller comes back and asks the question and re-opens the whole discussion.

Mr. Miller: I didn't use the word or term "deleterious."

The Court: I do not think it is leading. I am not disposed to draw the line very closely, but I think the question is objectionable because—for it asks the witness as to whether he considers it a deleterious ingredient. An expert witness may properly testify as to the results and effects, and then whether those things are deleterious ingredients is not a matter for the witness.

Mr. Miller: But that was not the ground of objection.

The Court: I am making it myself to save time. I don't think it is a proper matter for expert opinion, that is a matter that the jury under direction of the court will have to pass on.

BY MR. MILLER:

Q. Before anything is absorbed that is taken into the stomach, whether it be hot or cold, state whether or not it has to come to the temperature or near the temperature of the stomach?

A. Yes, almost invariably.

Mr. Miller: Your Honor holds that I cannot inquire or ascertain his opinion as to whether or not caffeine as shown in the syrup by this analysis is a deleterious ingredient?

The Court: That is one of the matters to be submitted to the jury and it is not the province of an expert to pass on that question. He may testify as to the effects, and all that, and let the jury determine —

Mr. Miller: May I submit that poison is one of the very questions —

The Court: Poison might have a definite specific definition which the word deleterious would not have; I have not ruled very closely on that.

(Witness Excused.)

(Analysis.) 3968 B.

Caffeine 0.20 per cent or 1.19 grains per ounce.

Phos. Acid 0.19 per cent.

Sugar 48.86 per cent.

Alcohol 1.27 per cent.

Caramel, glycerine,

Lime Juice, oil of cassia

Water about 41 per cent.

S. S. COHEN,

the next witness called upon behalf of the plaintiff, of lawful age, first duly sworn, tesified:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. Doctor Cohen, where do you reside?

A. Philadelphia.

The Court: I have not yet ruled or intended to rule whether the word "poison" as used in the act is used in the technical or ordinary sense. I have permitted proof as to the technical use, reserving the question until later in the case.

BY MR. MILLER:

Q. Where do you reside, you say Philadelphia?

A. Yes, sir.

Q. What is your profession?

A. Physician.

Q. For how many years have you been a physician?

A. Since 1883, 28 years.

Q. And graduated where?

A. Jefferson Medical College.

Q. Have you had any professional medical connection with that college since?

A. Yes, sir.

Q. Tell briefly?

A. I am now the professor of clinical medicine, physician to the hospital, and previous to that I held various medical positions.

Q. How long have you held your present position?

A. About eight years.

Q. Are you connected with the hospital that is connected with that college?

A. Yes, I am one of the attending physicians.

Q. Have you any connection with other hospitals other than that either as a physician or as a consulting psysician, and if so what?

A. I am physician to the Philadelphia General Hospital; consulting physician to the Jewish hospital; physician to Rush hospital for consumption, consulting physician to the Pennsylvania State Hospital for the Insane, and formerly was attending physician at the Philadelphia Polytechnic.

Q. Have you held any official connection with the American Medical Association or the medical association of your State or City, and if so breifly state?

A. I am a member of the American Medical Association and was at one time chairman of the section on Materia Medica and Therapeutics. I am a member of the Pennsylvania State Medical Society and have been chairman of its committees on Physiology and other subjects, and I have been president of the Philadelphia County Medical Society.

Q. Have you any connection with the Pennsylvania State Hospital for the Insane?

A. Yes, I am consulting physician to that.

Q. Now, in addition to this work state whether or not you have had active practice?

A. Yes, I have been in active practice for twenty-seven years, more active in the latter portion than in the earlier.

Q. In connection with your duties do you or not see

your patients face to face?

A. Always.

Q. State if you are acquainted with the substance known as caffeine which is now under consideration here?

A. I am.

Q. What character of substance is it?

A. It is a drug.

Q Is is poisonous or otherwise?

A. It is a poison.

Q. I pass you the formula or rather the constituents of Coca Cola syrup as testified to by Dr. Fuller in this case, and ask you whether or not the amount of caffeine as contained in that analysis if taken into the stomach once or oftener during the day would produce any marked symptoms or effects and if so what?

A. It depends of course upon the frequency with which it was used and the constancy of its use; it would depend upon the person who uses it; with young people, with feeble persons, with invalids, with nervous persons, and with old persons it would have much greater harmful effects than with persons not young, adult and early middle life, who were perfectly healty who had no special susceptibility to caffeine and who do not belong to the group, the very large group of nervous persons. Then again it would have greater harmful effects upon people who have sedentary habits than upon those who do a good deal of outdoor work, a good deal of muscular work, or live an active life in the open air. The harmful effects would of course be those of caffeine in general.

Q. And what are those?

A. The action of caffeine may be summed up in this way: It is an excitant leading to over action. This over action is followed by fatigue and possibly by exhaustion, and that leaves a person in what we call a condition of irritability, weakness, that is to say his energy has been used up, in a bad way, the machine has been driven too hard and too long and its left in a wobly condition, partially worn out and liable to go off when it ought to be quiet.

Q. Now, assuming that a person is accustomed to normally taking tea and coffee, one, two or three cups per day with his meals—state whether or not the adding of the amount of caffeine contained in this mixture that you have, Coca Cola, assuming you take an ounce of the mixture that contains one or 1.21 grains or about that of caffeine, would increase the effect of the caffeine that had been previously taken in the tea or coffee or that was being taken in the tea and coffee?

A. That is a simple matter of common sense. Of course it would be that much more harm than his tea and coffee had already done him.

Q. Now, state whether or not that effect would be or the effect of that as resjects health would be beneficial or otherwise?

A. Harmful.

Q. Are children as susceptible or more or less susceptible to the effects of caffeine than adult persons?

A. Children are very much more susceptible than grown up persons. In fact many physicians caution strongly against the use of caffeine in disease of children, saying that it must be used with the greatest of caution in diseases of children as it is so likely to do harm.

Q. State whether or not you have observed cases of caffeine poisoning?

A. I have observed cases of caffeine poisoning from tea and coffee and guano. I have not observed cases of caffeine poisoning personally from the alkaloid given in solution or swallowed as a powder.

Q. State whether or not you treat those cases?

A. Yes, sir.

Q. What is the treatment resorted to to relieve against caffeine poisoning?

A. Well, of course that would depend upon the particular state of the particular individual and the environment. The first thing of course would be to try to iwthdraw the tea or coffee, whatever the person had been in the habit of using—sometimes that cannot be done abruptly and sometimes it can because the system has become so accustomed to this artificial excitation that when it is withdrawn the weakness that is left is so great that you have got to go along gradually, just as you would do in the case of opium or any other artificial excitant or stimulant, or sedative or whatever it may be.

Q. Is or not caffeine a habit-forming drug?

A. It is.

Q. In what sense do you use that term, Doctor?

A. In the sense of creating an abnormal craving for the substance.

Mr. Miller: You may cross examine.

CROSS EXAMINATION,

BY MR. SIZER:

Q. You habitually use coffee, Doctor?

A. I use coffee habitually.

Q. You take it as a drug?

A. I use it because I have been accustomed to the slight stimulation which it gives after work, and because I am satisfied to pay the price of using it to relief fatigue of my daily labor.

Q. Taken in the form in which you take it it is not a drug is it?

A. It is.

Q. Do you take pepper on your food?

A. I do not.

Q. Do you take salt with it?

A. Very rarely.

Q. Is that a drug?

A. What?

Q. Salt?

A. No, it is a condiment.

Q. Well, isn't it classed as a drug?

A. It is properly a food because the body needs such a substance, it helps to furnish the mineral substances which are needed by the body, or part of the body, and needed by the body for its work; the difference between that and caffeine is that the body does not need caffeine for its work.

Q. Now supopse that the body does its work better when you take a little caffeine, is that a benefit to the individual who takes it?

Mr. Miller: I object to that as argumentative.

The Court: Yes.

BY MR. SIZER:

Q. Is it not a fact that when caffeine is taken moderately the brain and body are enabled to act better than without it?

A. No, they are not enabled to act better. They are enabled to act longer.

Q. Does or not the mind act more clearly if you took caffeine very moderately?

A. No sir, if the mind is already acting perfectly clear caffeine won't make it act any better; it will make it act worse; if a person is fatigued and excited it acts as an artificial bracer for the time being, so he is enabled to go on with work when he ought to stop—then caffeine will enable you to go and work, that is keep the body at work when he ought to stop and in that—

Q. (Interrupting) But suppose a man gets up in the morning and does not feel quite as bright as he would like to and he takes a cup of coffee, isn't it a fact that the effect of that coffee is to make him feel better?

A. Yes sir.

Q. And is it a benefit to him?

A. Not always —

Mr. Miller: I object to that, it is argumentative; if counsel wishes to ask if it has a beneficial effect I have no objection, but as to whether it makes him feel better I object to that.

Mr. Sizer: The whole line of testimony of these experts is mainly argumentative; there is no way to get the details of it without it—and I have just continued the same line of argument that he started out with in the examination in chief. He asserts that caffeine is a drug, and I was showing the manner in which it is used, and going into the details of the effects of its use.

The Court: He did not say it was a harmful drug. If the witness had said it was a harmful drug I think you could cross examine him. You may ask him as to any other facts, whether he considers it beneficial or not—I do not think he testified that it was a harmful drug.

BY MR. SIZER:

Q. About how much coffee do you drink a day?

A. I drink usually two half cups.

Mr. Miller: I do not object to his going into the inquiry about coffee except for the fact it prolongs the case, and how much coffee the witness drinks I submit is not relevant to the issues at all.

The Court: I think it is competent; it shows how much personal experience the witness may have had with coffee, and casts some light on the weight to be given to any one's opinion, from personal experience, and in that view I allow it.

BY MR. SIZER:

Q. How long have you been drinking it at that rate?

A. When I first began to drink coffee I suppose I drank about what would amount to what is called half a cup, that is a half a cup of coffee and half of milk and cream every morning. Afterwards when I got to working pretty hard, when I would come from seeing my patients in the morning I would sit down at that time at lunch and got in the habit of taking a half a cup at that time, then you want to know my experience, I will give it to you. Afterwards I found that I had a craving for more —

Mr. Sizer: (Interrupting) Just answer my question first, doctor?

Mr. Miller: That is the only way he can answer it.

The Court: What was the question?

(The question was read to the court as follows: "How

long have you been drinking it at that rate?")

The Court: The question is rather narrow, just make an answer to that question?

The Witness: May I explain then?

The Court: Yes?

The Witness: Then I have been drinking it at that rate for about three years. Now I want to make an explanation why I —

The Court: (Interrupting) I don't think that is an explanation, nothing to explain except the fact.

BY MR. SIZER:

Q. You say that the use of caffeine containing substances causes an abnormal craving for them doctor?

A. Yes, sir.

Q. In all cases?

A. Yes, sir.

The Court: I did not mean to rule his other experience as not competent but merely it cannot be given in answer to that question.

BY MR. SIZER:

Q. Has that been the case with you doctor?

A. It has.

Q. That you have formed an abnormal craving for coffee by taking two half-cups of coffee per day?

A. Now then I will explain what I mean.

Q. I ask you that simple question?

A. Not by taking two half cups of coffee for three years—I have prevented the abnormal craving which was about to develop when I was taking three cups a day.

Q. You have not formed any abnormal craving for it by the use of two half cups you have taken?

A. I think it would be better for me if I didn't take any.

Q. Have you formed any abnormal craving for it by the use you have made of it?

A. I believe that the craving which any man, myself included, for taking his coffee day after day is abnormal.

Q. And so you say now you have an abnormal craving for coffee?

A. Explained as I have said there that I think every man who is in the habit of drinking coffee daily does so because he has an abnormal craving for it, and while it is not a very serious matter and while it don't interfere with his morality like morphine or opium yet he would be very much better off if he didn't do it.

Q. I will ask you if you know of Bunge's work on Phy-

siologic and Pathologic Chemistry?

A. I know of the work.

Q. Is it a standard authority?

A. Some people think so and some think not.

Q. What do you know about it or think about it?

A. I am not an expert on Pathologic chemistry.

Q. Are you prepared to state whether or not he is a standard authority on the subject or not?

A. No, sir. I say some people accept it and some do not.

Q. You say you are not an expert on pathologic chemistry?

A. No. Not on technical pathologic chemistry; I do not make laboratory experiments, or animal experiments or any thing of that kind.

Q. Now, you say that caffeine is poisonous. That is, you mean when taken in large quantities?

A. Under my conception of a poison, caffeine is to a certain extent poisonous in any dose, but of course it becomes more and more poisonous as the dose is increased.

Q. What do you mean now by "poisonous" in that connection?

A. By "poisonous" I mean anything which disturbs in a harmful way the action of the human body when it is taken in relatively small quantities.

Q. Is it not a fact and so recognized in the authorities that when caffeine in the form of coffee or any other beverage is taken in relatively small quantities, it acts as a stomach tonic, stimulates the body, the nerves and the brain?

A. At their own expense, and therefore harmful.

Q. Is it not recognized that it produces those results, Doctor?

A. It does.

Q. It stimulates the body, for one thing?

A. Yes.

Q. Impairs the digestion?

A. Yes.

Q. And stimulates also the brain and nerves?

A. It excites them. It does not stimulate them.

Q. You say it does not stimulate them?

A. No, not in the sense in which you are trying to use the word "stimulation."

Q. Do you say it is a stimulant or not, in the proper sense of the word? You need not seek out my meaning for it, but in the ordinary meaning of the word "stimulant," is it not?

A. It is a stimulant in so far as it excites to action,

but it is a stimulant of a kind which is always accompanied by after depressing harmful effects.

Q. In so far as it improves digestion it is not harmful, is it?

A. In so far as it improves digestion it is not harmful, but in so far as the digestion is disturbed by the secondary effects it is harmful.

Q. Just leave aside for a moment the secondary effects, and come to the primary effects. You say the effect of caffeine in moderate doses is to improve the digestion. Is not that a distinct gain?

Mr. Miller: I think that is a matter of common knowledge.

The Court: I guess that is obvious.

BY MR. SIZER:

Q. How about stimulating the appetite? You say it does. You do not say that is of itself deleterious, do you?

A. It may be, yes. It may make a man eat too much, although —

Q. Suppose you dress up a man's food in an appetizing way, put parsley around on his beefsteak, and things of that kind. That stimulates his appetite, does it not?

Mr. Miller: I submit that is foreign to the controversy.

The Court: The exception is sustained.

BY MR. SIZER:

Q. Is it not further true that caffeine, taken in the form of a beverage renders the reasoning and imaginative powers more acute?

A. I have just said what my opinion of that was, that if a man is in a perfectly normal and healthy condition and not fatigued, his mind is working at its best, and whatever he takes with the idea of stimulating his reason or his imagination, or any of his intellectual powers, is taken under hallucination and fatal delusion. If a man takes whisky or any other form of alcohol, in order to make him talk more brilliantly or thinking that it will make him talk more brilliantly or anything of that kind, he is fatally mistaken. He impairs his powers and does not benefit them by it; but if a man is fatigued and he wants something to overcome the sensation of fatigue and enable him to go on and work when he ought really to be resting, then his alcohol or his coffee will permit him to do it.

Q. Now, will you please read that question to the Doctor—I asked you if it is not true, Doctor, that the effect of caffeine on the brain is to stimulate the reasoning and

imaginative power. Is that true or not?

A. That is not true.

Q. It does not do that?

A. No, and I have just explained why it is not true.

Q. Does it enable the person to perform more work than he might otherwise?

A. It enables him to perform more work than he ought to be doing, yes.

Q. In every case then when a man takes coffee or tea he produces more work than he ought to be doing?

A. That depends on the man. It enables him to do it, if he wants to do it.

Q. Then that is not the result in every case?

A. It enables him to do it. He does not always do it.

Q. Then when you say it makes him perform more work than he ought to perform, that statement is not stirctly correct, because it does not do that universally?

A. Yes, the statement as I make it is correct.

Q. That is, that it always makes a man do more work than he ought to do?

A. No. I say, enables him to do.

Q. Suppose he sits down and does not do the work, does not do any more work than he ought to do.

A. Yes.

Q. Then what deleterious result follows that?

A. Then the deleterious result there is that he is excited, his brain cells have been excited and he does not use them, and the excitation reacts on the brain cells themselves and injures them.

Q. And that is the case now, when a man takes caffeine in any amount?

A. No, I do not say that. I say that its habitual use in that way, and occasional use, does not produce effects that we can demonstrate. We can only infer that they exist from what we know of the effects on the habitue.

Q. How much caffeine would a man have to take in order to produce that abnormal stimulation that you speak of, which will result in enabling him to do more work than he ought to do?

A. That depends on the individual. With some persons it may be as little as half a grain, and with others it may require two or three grains.

Q. And with a man who is accustomed to use tea and coffee, it would take still more, would it not?

A. That I do not know.

Q. You do not know anything about the effects of tea and coffee, then, on those who are accustomed to its use?

A. Yes, I do know, but I have not the data with which

to answer the question that you ask me.

Q. The fact is, is it not, that a man may acquire a tolerance for caffeine-containing substances, by reason of which the taking of a cup of coffee or a cup of tea would have much less effect on him than it would on one who is not accustomed to it?

A. He may acquire such a tolerance to tea and coffee that the taking of caffeine will have less obvious effects, less external effects, show itself less in his motion or his conduct; but the effect on his cells, the effect on his brain, the effect on his spinal cord, the effect on his stomach, and the effect on his liver, will be just as bad.

Q. How do you know that, Doctor?

A. I know that from observation of patients and of persons who have taken tea and coffee.

Q. By observation on patients who have come in for treatment?

A. And also from my reading and from communication from fellow physicians who have observed cases.

Q. How much of that is based on your communications with your fellow physicians who have observed cases?

A. It is impossible for me to separate my knowledge into its elements. I hope it is digested.

Q. Then your testimony is based partly on your experience with patients you have treated?

A. Partly.

Q. You do not take coffee or tea away from all patients that you treat?

A. I do not.

Q. Why not?

A. Because, as we have to do it in every medical problem and every problem in life, in fact, we have got to weigh the evils, and we sometimes choose the lesser evil.

Q. Why do you take it away from any of them?

A. Because the evil is so great there that it is absolutely necessary.

Q. That is, if they are using it excessively you advise them to stop it?

A. If they are using it so much that its disadvantages have become very obvious, or on account of the peculiar situation of the patient himself—or herself—very often it is herself—the execessive nervousness or irritability, especially the irritability, and the disinclination to work, and the neurathenia, and all that sort of thing, that they have become very great or have become moderately great, then I take it away because the harm over balances any possible good that might come out of it.

Q. And if you think the harm will not overbalance any possible good which will come out of it you do not take it away?

Mr. Miller: I submit that is foreign to the controversy, what this man does in particular cases as a matter of treatment and the relative effects of good or harm; it is purely personal to him.

The Court: I overrule the exception.

The Witness: Then I have to answer that by referring to the general practice of physicians.

BY MR. SIZER:

Q. No, you do not. I am not asking you to refer to any general practice. I ask you to answer the question.

A. I will answer the question and then ask permission to explain it. I do not take it away under those circumstances for this reason —

Mr. Sizer: I object, I did not ask him for any reason.

The Court: The witness is entitled to give his reasons He may give his reason.

The Witness: — that when we get a diseased organism, and when we are dealing with a sick person we are dealing with a machine that is out of order—that is the first thing. Now, it is out of order in various ways; sometimes one part is more out of order than another. Sometimes one part is going too fast and another part going too slow. Sometimes one part is working smoothly and another part is working in a jerky way. What we have got to do in such a case is to make the machine run smoothly and harmoniously, if we can, and we can sometimes do that better by leaving some of the particular parts in the shape in which they are, and adjusting other parts so as to meet up and balance it. What we try to do is to restore the balance, or we cannot make a perfect machine out of it again.

Now, where these persons are in this condition, where we cannot hope to bring them back to a normal state, then we have got to consider how much worse would it make them to do that, how much better will this be, and if it makes it better in this end how much worse will it make it in the other end. We have got to weight all the probabilities, just as I suppose a lawyer does when he has got a bad case—and then do what is best under the circumstances.

Q. You testified a while ago, that your statement that caffeine was always injurious in any quantities was based partly on your experience with your patients and partly on your reading, and partly through communications with other physicians,—did you?

A. Yes.

Q. Now then, do all the patients that come to you to be treated show indications of suffering from the use of caffeine?

A. That depends upon what you call indications.

Q. Take it in any way, any indications of suffering from the use of caffeine; do all the patients that call on you manifest indications of that kind?

A. Obvious indications are not shown by every person, but many persons do show obvious indications. Other persons show such symptoms that one is reasonably entitled to infer, taking that indication with his other experience, that they are being harmed, we will say in a very slight degree but still being harmed.

Q. Will you kindly answer the question I asked you?

(Thereupon at the request of counsel, the stenographer read the pending question.)

Mr. Miller: Be treated for what, I asked.

Mr. Sizer: I did not ask him. Please allow me to put the question myself.

The Witness: I submit I cannot answer that question yes or no. I have to answer it by answering it in the way I did.

BY MR. SIZER:

Q. Do you pretend to say that you do not know whether all the persons who come to you for treatement give indications of having been injured by the use of caffeine?

A. No. What I pretend to say is this: That it is only within the last five of six years that my attention has been so strongly turned to this subject that I have taken the matter into consideration. It is a subject which is a little difficult because persons are submitted to all sorts of harmful things in the course of their lives and to separate one from another is difficult.

Now, while I infer in certain cases that the people are being harmed by tea and coffee, I have not yet come to the point where I can be entirely postive that they show obvious indications of it. I am tending in that direction, but have not got far enough to be positive.

Q. I am not asking you about back five or six years. Have all the patients who have come to you for treatment within the last six months shown indications that they were suffering from the use of caffeine?

A. That they were suffering from its use? No.

Q. All of them?

A. I say, no.

Q. None?

A. I did not say "None." No.

Q. What did you say?

A. I answered your question "No" on that word "suffer."

Q. Did all of them show any indications that they had been injured by the use of tea and coffee, or caffeine containing substances?

A. Those of them who had been in the habit of taking tea and coffee all their lives have shown certain signs which made me think that they might have been injured by tea and coffee, but I have not come to a positive conclusion in that respect, apart from my general opinion.

Q. You have not been able, then, to come to any definite conclusion as to whether or not they were in a majority of the cases suffering from the use of tea and coffee, or caffeine-containing substances, or whether they had been injured by them?

A. I have not been able to come to a conclusion in every individual instance; no.

Q. What works have you read, Doctor, what medical authorities do you refer to that sustain the proposition that the use of tea and coffee in all cases produces deleterious results?

A. I think that if you will take the writings of any man who has written on the subject of tea and coffee who is entitled to express an opinion, clinically, you will find on reading everything that he says, taking the whole context and not taking out a word here and a word there and a line here and a line there somewhere else, but taking the article as an entirety, I should be very much surprised if you will find any good authority who will deny that fact.

Mr. Sizer: I will ask the stenographer to kindly read that question to the Doctor.

(Thereupon the stenographer read the last question to the witness.)

The Witness: Well, I answered that, taking the medical authority as a whole and now picking out isolated cases from his works, all that I have read that are entitled to express an opinion on the subject, express that same opinion.

BY MR. SIZER:

Q. Now, Doctor, we do not know what you have read. I will ask you again to answer the question which I propounded to you a while ago.

The Court: He wants names.

The Witness: Well, if you want me to give you the

names of all the books I have read,—I do not remember what every particular author says on every particular subject but I have read a large number of books which speak of tea and coffee, and among them I can mention Stille and Mesh, and Hare.

BY MR. SIZER:

Q. Take Doctor Hare, for instance. Does his work say that the use of tea and coffee in all cases produces deleterious results?

A. No. I say that I cannot tell you what any authority says in the specific language, but that if you will take the entire opinion of any one who is entitled to express it, that is a legitimate inference from what they say.

Q. Do you mean to say, then, Doctor, that the legitimate inference from what Doctor Hare says on that subject, taking all he said, is that the use of tea and coffee in any quantity produces deleterious results?

A. I do not know whether that is in Doctor Hare's book or not.

Q. Do you know whether or not it is in anybody's book, and if so, whose book do you know that it is in?

A. I cannot give you a specific book, but I am willing to look at any book which you wish to show me,—and I do not need any other authority for that than my own observation.

Q. Your own observation has been principally confined to people that came to you as patients for treatment, has it not?

A. Patients for treatment for various things; yes.

Q. People who were sick?

A. Not always people who were sick; no. People who were well—who think that they are well and want advice on one thing or another.

Q. What did they come to you for treatment for, if they were well?

A. I say, they want advice on various subjects.

Q. They wanted advice because they did not think they were well?

A. No; sometimes they wanted advice on subjects which had nothing to do with their health.

Q. In those cases of people who came to you for advice, in connection with matters that had nothing to do with their health, and that were not perfectly well, you would observe indications that they had been injured by tea and coffee?

A. Some cases.

Q. In all?

A. Not in all; no.

Q. In the majority of them?

A. I cannot say a majority, but in a fai. proportion.

Q. How could you observe that they were suffering from this tea and coffee, or that they had been injured by tea and coffee, if they were perfectly healthy and did not need any treatment for their health?

A. I say they thought they were in perfect health; but I noticed they were irritable for one thing.

Q. And they came to you to be treated for irritability?

A. No; they came to me to talk about—a doctor is a sort of father confessor sometimes, and people come to him to talk about all sorts of things, and you will notice in the course of conversation, if a man is excited and irritable, that he magnifies his trobules, that he is unduly depressed. He does not know it. If you were to tell him he was sick he would not believe you; but you can see it and you can by well directed questions find out whether he is using tea or coffee to excess. In some such cases it has been so, and in other cases it has not been susceptible of verification,—could not prove it, supposed it but could not always prove it.

Q. A great many people, then, come to you suffering with irritability and nervousness and you would find on investigation that their condition was not in any way attributable to tea and coffee?

A. I found that I could not prove it was solely due to tea and coffee, but I am strongly of the opinion that tea and coffee contributed to the condition.

Q. A good many other things cause irritability and nervousness besides tea and coffee?

A. Oh, yes.

Q. And so the mere fact that a man is irritable or nervous would not necessarily indicate that his condition was due to tea or coffee?

A. No. I have been trying to show that, that you have got to study the case and cannot always prove it.

Q. And when a man would come to you to consult you about other matters, if you observed that he was irritable or nervous, would you just go and look up his case and see what was the matter with him and proceed to treat him for irritability?

A. Not always. If he had come there to see me about something or if he was a patient having confidential relations, I might say to him, "Look here, you are making too much of this thing. You are unduly sensitive; you are excited." And we would get to talking about other things and I would ask him whether he took tea or coffee.

Q: And that, now, is the kind of people on whom you have made the observations on which you state that the use of tea and coffee in any quantities always produces deleterious results?

A. No; those are not the only kind of people. Those are some of them.

Q. What other kind of people have you made observations of that kind on?

A. On people who have come because of the symptoms, and, upon investigation, have been shown to be users of tea and coffee—and especially I noticed when I used to work in the Philadelphia Polyclinic.

When I first started at work there I used to go into the dispensary myself and see every patient who came there, and we had at that time the largest out-patient service but one in Philadelphia at that institution in my clinic, and I noticed among the Russian immigrants who were then beginning to come into the country in rather large numbers, excessive nervous irritability, and so forth; and on inquiry I found that most of them were habitual tea drinkers.

Q. And they drank very large quantities of tea, did they not?

A. They drank it in glasses rather than cups. They drink from two to three or four glasses a day of tea. I do not know how strong it was; but I began to think then that a good deal of their irritability was due to their tea, although they might come from quite other conditions than those which we observed.

Q. They were all people that came to confer with you in your capacity as phisician?

A. Yes.

Q. Because there was something the matter with them and they wanted to be treated?

A. Yes; and I observed these other symptoms that they had not spoken about.

Q. And so you draw the conclusion that practically all the people that come to consult you on the various ailments that they may be afflicted with, are really suffering from deleterious effects of tea and coffee?

A. No; I said the reverse, distinctly, before.

Q. Did you not say that you drew the conclusion from these people who came to confer with you that in all cases where they had used tea and coffee, they were suffering from the effects of it?

A. No; I did not say that. I said that in a great many cases, although you could suspect that the persons were suffering from the effects of tea and coffee, there were no

obvious indications of it, the conclusion could not be drawn postively.

Q. Why would you suspect it, then?

A. From my knowledge of the effects of caffeine, that cannot conceive how persons can go on taking caffeine day after day and year after year without being injured by it to some extent, though it might not be enough for a scientific demonstration.

Q. In other words, if a perfectly well man comes along and apparently he has got nothing the matter with him, and you find out that he has been drinking a cup of coffee for breakfast for five or six years, you would reach the conclusion that that has injured him in some way.

A. I make that, not on that particular man, but as a general statement.

Q. I say, any man who you might meet, no matter how well he may be apparently, if you find he has been drinking a cup of coffee a day for a number of years past, your opinion is his health has been injured by it?

A. No. I form no opinion on the casual individual who I meet. I form as a general opinion, the opinion that the continual consumption is injurious; but I do not form an opinion as to an individual unless I examine and study that individual.

Q. Did you not say that was so in all cases?

A. I form no opinion as to an individual who I had not personally examined and studied.

Q. You did say a while ago, did you not, that it is universally, always, the case where a man takes tea and coffee in any amount, that he is being injured by it, whether he knows it or not?

A. Whether it shows or not, I believe that his cells and tissues are being worn out faster than they would otherwise be.

Q. And so I say, that if you met a perfectly well man, if you found out that he has been drinking as much as a single cup of coffee a day, you know that his health is impaired.

A. I form no opinion whatever except where I examine the person.

Q. Will this use of tea and coffee, very serious use, produce any organic changes in the human being ?

A. That is a subject on which we have not sufficient data. My personal opinion is that they do, but I cannot prove it. I have no scientific proof of it whatever. It is merely opinion.

Q. In other words, you do not know?

A. It is an opinion, not knowing, I cannot state postively.

Q. In other words, you do not know; is that true?

Mr. Miller: I object to that.

Mr. Sizer: I did not ask him for an opinion that he might have made on anything that he does not know.

The Court: The objection is overruled.

The Witness: I do not know postively.

BY MR. SIZER:

Q. Is it not a fact that if a man has been using tea and coffee for a period of twenty years, or ten or fifteen or five years, and the use of that tea and coffee had been injurious to him, that there would be organic changes manifested in his body after his death?

A. That bring up the reason why I do not know. There are so many other things that no man who dies, unless he dies suddenly by a lightning stroke or prussic acid of something of that kind, will show in his body organic changes, and consequently I cannot tell who her other particular organic changes are due to the caffeine or not. Therefore I do not know, though my opinion, my clinical opinion is —

Mr. Sizer: I did not ask you about your opinion —

The Witness: — that there are such changes.

BY MR. SIZER:

Q. Suppose a man drinks tea or coffee moderately for a period of five years, and then is suddenly killed, is it not true that if that use of tea and coffee has injured him, there will be organic changes in his body, and his organs will not be in normal condition?

A. No, I would not say that because our methods of investigation at present are not sufficient to show those minute chemical changes in the arrangements of the atoms of his brain cells and his nerve cells by which any opinion could be formed.

Q. In other words, the changes would probably be so minute that you could not observe them by post mortem examination?

A. Some changes would be and others might not. According to what those other changes were and what you knew of the previous history of that individual, and everything elese that he has been exposed to, you draw your conclusions, therefore I am very cautious in drawing a conclusion and stating it when I have not sufficient knowledge.

Q. Now, I want you to answer this, if you are able to

do it, and if you are not, frankly say so: Suppose a man has been using either tea or coffee for a period of years.

A. (Interrupting) Yes.

Q. And suppose then he dies suddenly and a post mortem examination is made of his body. If that use of the tea and coffee has resulted deleteriously to him, will there not be organic changes in the body?

A. Not necessarily changes that can be demonstrated.

Q. Then, if there would be any changes, they might be so small they could not be demonstrated?

A. There might be changes which could only be demonstrated by methods of investigation which have not yet been perfected.

Q. And then the question whether there were such exchanges or not would, of course, be mere matter of opinion?

A. No; if we perfect our methods of investigation, then it would no longer be a matter of opinion, but a matter of fact.

Q. You say if you could not discover them they would be a mere matter of opinion?

A. Certainly, if you cannot demonstrate them it would be a matter of opinion.

Q. Now, Doctor, the effect of caffeine would be the same, would it not, whether taken in the form of tea and coffee or in any other way, in any other solution, that is?

A. The amount of caffeine that becomes effective would have the same effect, however it was introduced; but the method of introduction will alter the amount that becomes effective.

RE-DIRECT EXAMINATION,

BY DR. MILLER:

Q. I omitted to ask you if you are the author of any treatise on medicine.

A. I am author of a work, joint author of a work called the Essentials of Diagnosis. That was a little juvenile book, written when I had practiced only a few years.

Then I am the editor of a system, an encyclopedic system called "A System of Physiologic Therapeutics."

Q. Of how many volumes?

A. There are eleven volumes. Then I have written and contributed to great many medical journals and scientific bodies, the transactions of scientific bodies, and the encyclopædias edited by other people—Doctor Hare's encyclopædia, and Keating's and Booth's and Foster's dictionary of therapeutics, and so on.

Q. Is that Doctor Hare who is present here?
A. Yes.
(Witness Excused.)
Thereupon, at 2:10 o'clock P. M., the further hearing of this cause was adjourned until 8:30 o'clock to-morrow morning, Saturday, March 18, 1911.

CHATTANOOGA, TENNESSEE.
SATURDAY MARCH 18, 1911.
EIGHT-FORTY A. M.
Court met pursuant to adjournment.

Appearances the same as on yesterday.

PLAINTIFF'S EVIDENCE CONTINUED:

MAURICE VEJUX TYRODE,
the next witness called on behalf of the United States, of lawful age, first being duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:
Q. Your name is Maurice Vejux Tyrode?
A. Yes, sir.
Mr. Miller: On yesterday, your Honor asked for some authorities, and I have not collated ours under the Food and Drug Act since that time. We have one, of which adverse counsel has a copy, the United States vs. 120 barrels of flour.
The Court: I think I have that. Is that under the Food and Drug decision?
Mr. Miller: Yes.
The Court: I have that, I have not read it recently, though.
Mr. Sizer: That is known as the bleached flour case.
The Court: I have a copy of that. Kindly acknowledge receipt of that letter to Dr. Witherspoon, from whom it was received.
Mr. Miller: I will do so, and have it made a part of his deposition.
Mr. Sizer: We would rather have him here, it he wants to do that.
Mr. Miller: If you don't want to do that, we will leave his testimony as it stands.
The Court: By agreement it could be made part, but otherwise not.
Mr. Sizer: We will confer about that.

The Court: I wish some one would acknowledge receipt to him of that letter.

Mr. Miller: I will be glad to do that.

Q. Where do you reside, Doctor?

A. In Boston.

Q. What is your profession?

A. Physician.

Q. State whether or not you have had any experience as a pharmacologist.

A. Yes, sir: I have worked in pharmacology about fourteen years; was a teacher of pharmacology for about ten years.

Q. How many years experience have you had as physician?

A. As a physician, ten years.

Q. Where have you practiced, in what classes of practice have you specialized?

A. Internal diseases, practically all gastro-intestinal tracts.

Q. That means the taking of medicine internally?

A. Yes, sir; internal medicine, means diseases of the internal organs, excluding the eye, ear nose, and throat and mid-wifery.

Q. You say you have been a teacher for a number of years; with what institution or institutions have you been connected as a teacher?

A. With the Harvard Medical College.

Q. At Boston?

A. Yes, sir.

Q. Were you graduated in that institution?

A. Yes, sir.

Q. What branches did you teach at Harvard?

A. I taught pharmacology and Materia Medica, and also some therapeutics in that, but my position was not as teacher of therapeutics.

Q. What do you mean by Materia Medica?

A. Materic Medica is the study of the properties of drugs, and considered in the broad sense of properties; in the narrow sense, only the chemical and physical properties.

Q. As a student of pharmacology and as a pharmacologist, what did you do and what is the line of your particular investigations?

A. In the study of the action of drugs, their effects upon the animals, also teaching students both experimentally and otherwise.

Q. Now, then you teach of speaking them experimentally, how did you experiment in your institution of med-

ical students?

A. By demonstration, showing the action of various drugs upon animals before bodies of students, and in experimental courses, I have the students themselves study the actions of drugs upon animals.

Q. Now, when you speak of experimentation on animals, do you or not include man?

A. Yes, man may be included but of course men can only be used in a limited way. No cutting operations can be performed on man—different drugs can be given to man to watch the effect upon him, and occasionally we do that. We have the effect of alcohol upon man and upon the muscular strength and nervous system.

Q. State whether or not that is the method adopted by you in teaching pharmacology and study of pharmacology, is the usual one—

A. (Interrupting) Yes, sir; it is.

Q. Have you had any experience in the matter of research, Doctor, and if so, explain what you mean by that?

A. Research is the investigation of problems which are either not clear, or in which an individual experimenter has reason to doubt the previous work in pharmacology, the study of new drugs and also the study of old drugs with a view to clearing up actions which have been vaguely known.

Q. What, if any, experience have you had in that respect?

A. I have worked on research since '96 or '97 until the present time, practically, up to within a few months ago, say six months ago.

Q. With what institution or institutions of learning are you, I mean with what society or societies of medical practitioners, professors, are you connected, just in a brief way, Doctor?

A. With the American Medical Association, the Massachusetts Association, the American Society for Pharmacology and Experimental Therapeutics, the Boston Medical Society, the Boston Medical Science, I should say, rather, the Medical Library Association.

Q. State whether or not you are acquainted with the properties of the substance known as caffeine, and its effects on any part of the human system, by reason of your experiments, investigation and study.

A. Yes, sir; of caffeine.

or to a growing up person, or during the school age period?

Q. Tell what they are.

A. I beg your pardon?

Q. Tell what caffeine is and what the effects are on

those parts of the anatomy which you have observed.

A. Caffeine is considered, and in fact is named as such in Schmiederberg's book, as a nerve and muscle poison. The general effects are those, first of stimulation, then of depression on the central nervous system. The primary stimulation we have—first, the increase in the action of the medullary centers, that is an increase in blood pres sure, an increase of stimulation in action, quickening of the heart, astimulation of the vagous nerve in the medulla, a slowing of the heart, and we have an increase in the action of the muscles, in frogs—or with frogs. There is in human beings, a difference in the work done, there is an increase in the temporary work, an increase—the fatigue comes on sooner. With men, usually, the experience is different—when man is fatigued, caffeine seems to give an increased power for calling on the reserves, and for the production of more muscle and more mental work.

Q. And what is the ultimate result of that as affects health?

A. These results are deleterious, as the stimulation and giving off of energy, or reserve energy, lead to exhaustion and fatigue.

Mr. Sizer: I understood at one place in his answer that the witness said something about what some author says, that some author says so and so about something, and I object to his statement as to what an author says about it.

The Court: The exception is sustained to that portion of the answer, and it is excluded.

BY MR. MILLER:

Q. State whether or not caffeine is a muscle and nerve poison.

A. It is.

Mr. Sizer: I object to that unless he explains in that connection what he means by it.

BY MR. MILLER:

Q. I will ask you to explain, tell what you mean by that.

A. Muscle or nerve poison is one which produces a pharmacological effect, an action on the muscle and nerves; the effect is usually stimulation at first, then depression later, and death of the muscle or of the nerve. In fact, if a muscle or nerve is placed in a solution of caffeine, it is killed and loses the power of electrical stimulation, so that this is truly a nerve and muscle poison.

Q. Have you or not demonstrated that by experiments?

A. What is the effect of caffeine on man as respects the brain?

A. As respects the brain, caffeine stimulates the brain. That is particularly marked, the stimulation of the brain, in those conditions of nerve fatigue where the brain has decreased activity, but this iswith smaller amounts. With large amounts, even the normal brain of a normal man may be intensely stimulated, and headaches, confusions, and all those things, delirium, hallucinations, and even convulsions may be produced.

Q. Is the effect which you have described, Doctor, detrimental to health?

A. It is detrimental to health unless used as a medicine in suitable cases.

Q. And in what cases is it prescribed as a medicine?

A. It is prescribde as a diuretic in order to increase the flow of urine; this it does not always accomplish well on account of constricting influence on the vessels of the kidneys. It is prescribed for diseases of the heart; this action it does not always do well, or does not to my mind act well as a heart stimulant, because it produces irregularities, and there are recorded cases of harmful effects in cardiac diseases. It is recommended also as a stimulant for nerve fatigue. Its use in nervous fatigue, I should only consider worth using in a case of emergency, in a case where the exhaustion was intense and to temporarily tide over the patient, but I should object to its use, although it is sometimes recommended as such, for chronic nervous excitation, as it would increase the exhaustion by drawing on the reserve force instead of causing rest.

Q. State whether or not its effects are more marked or observable than the effects which you have described in any particular class of persons, and if so, in what classes.

A. Yes. sir; the effects are more marked in extremes of age, that is in children, old people, are more marked in females than in males, more marked in people of a nervous condition or nervous tendencies; people who are neurasthenic, or people who are inherently nervous.

Q. State whether or not if a child be in school, at school age, when required to apply its mind to study, this would or would not be marked or more observable as against one who was in the open air and constantly engaged in outdoor exercise.

A. Yes, sir; decidedly; caffeine is much more harmful to people who are engaged in indoor occupations and have very little opportunity for exercise or outdoor work, in clerks, bookkeepers or professional men who work indoors, they are very much more susceptible than people who

out doors as those engaged in farming work.

Q. Speaking of that using up of the reserve force, or the calling on a man who is fatigued to put forth that reserve force which nature has supplied him with to start with, state whether or not exhaustion, or the using-up of that reserve force is beneficial to health, or otherwise.

A. It is harmful, as we have sufficient normal ways of using up the nerve force, or the reserve force, without having it artificially used up.

Q. How does this substance, caffeine, act on the nerves what is its direct effect if it be taken in the mouth?

A. You mean the central nervous system or the peripheral nerve?

Q. Well, both, explain in a brief way to the jury.

A. When caffeine is taken as the active principle of coffee, we have first, an excitement of the brain, and increase in the action of the nerve; we may feel temporarily better, stronger, we may feel that we can do more work; we have the sensation of well being, increased well-being, especially when we are tired out for some reason or another. Succeeding that, there comes a period or stage of fatigue when the brain and the central nervous system in general become tired, almost exhausted, thru the action of the drug; then we have following that irritability; we feel out of temper, irritable, nervous, and very frequently sleepless, or if we sleep, our sleep is not perfect, it is imperfect, we wake up in the morning feeling tired and badly; I should say that in general would be the effects.

Q. It this caffeine be administered in the evening or at night what would be the probable effect of the administration of from one to one and a quarter grains to a child

A. One to one and a quarter grains would almost certainly cause in a child sleeplessness or a restless sleep, and there, then, is a very important point in that the individual may be unconsious during the night, the unconsciousness is not sufficient, probably to cause sleep, the person tosses about the bed, dreams a good deal, and the next morning, wakes up tired, he is not refreshed, and that dose of one and a quarter grains would certainly be sufficient to do that in a child or in a growing adult, in probably a large majority of cases.

Q. State whether or not you have ever made any experiments with caffeine on yourself personally.

A. Yes, sir; I have.

Q. How long since, and over what period?

A. Why, I tried it twice in my life, one about seven years ago and another time about six years later, seven grains of caffeine. I tried it in a period when I was not

taking coffee, to see the effect from a scientific point of view.

Q. Yes, now how many grains of caffeine did you take at the time and about what time was it taken?

A. I took seven grains; I took it once in the evening and took it another time in the morning.

Q. Did you take seven grains each time?

A. Yes, sir; approximately, I took half a gram, that is probably seven grains.

Q. Now, what was the effect on you, Doctor?

A. Well, the effect was similar in both cases. It produced a good deal of excitement and sort of choking sensation, or pressure, palipation, restlessness, sleeplessness, in fact, complete sleeplessness, the first night, as I remember, in both cases, and the other night, still disturbed, so that the action seemed to go over several days, didn't cease the first day. If I remember, that is all—no, there were confusions of thought and ideas and considerable anguish, mental anguish.

Q. What do you mean by "palpitation" when you use that word?

A. Feeling of the heart beat, a sensative feeling, heart beating rapidly.

Q. More rapidly than normal?

A. Yes.

Q. And what is the effect of increased stimulation above normal upon the heart where it is required to beat faster than it would otherwise under normal conditions?

A. Fatigue follows.

Q. What is the effect on the human health?

A. You say would that effect the human being?

Q. No; what is the effect on the human health?

A. Deleterious, and of course chronic symptoms of the heart are likely to produce changes and enlargement of the heart, and changes in the blood vessels, in the arteriosclerosis type, irritation of the vessels.

Q. State whether or not you observed the effects of caffeine on other persons.

A. Not of pure caffeine, but of coffee.

Q. Now these two experiments that you tried on yourself, going over a period of six years, state whether or not that was caffeine itself.

A. Yes, sir; pure caffeine, not the citrate.

Q. That you use in the experimental work?

A. Yes, sir: chemically pure.

Q. What have been the results of your observations on other people who took caffeine as contained in coffee, as to its effects on humanity. State whether or not, they

were like those observed on yourself, differing only in degree.

A. Yes, precisely, the only difference being in degree.

Q. Have you or not experimented with it on animals?

A. Yes, sir.

Q. What was the character of the caffeine that you used there, was in combination with other substances that are found in coffee, or was it chemically free caffeine?

A. It was caffeine itself.

Q. On what kind of animal did you experiment?

A. On frogs, chiefly—rabbits, all I did was to try to get the rigor mortis from pieces of rabbit muscles.

Q. What do you mean by rigor mortis?

A. Rigor mortis is the coagulation of the muscle tissue which occurs at death, due to the formation of various acids, but caffeine produces something analgous to it, whether identical or not, I do not know. I have given caffeine to rabbits, but I don't remember the doses or any details about it; this was simply in teaching students.

Q. Speaking from your experimentation on yourself, your experiments and observations on other persons who were consumers of caffeine, your experimentation on animals and your reading on the subject, state whether or not on the whole the consumption of from one to one and a quarter grains per day of caffeine would have any effect on the human health, taken indiscriminately by the young and the old, and in connection, say with six or seven ounces of carbonated water, and if so, what that effect would be.

Mr. Sizer: I submit he has testified what the effects of caffeine would be. The question is not competent to try to draw out of him what the effect would be again.

The Court: This is, as I understand, putting a specific hypothetical question. Just read the question. (Thereupon the question was read as follows:

"Q. Speaking from your experimentation on yourself, your experiments and observations on other persons who were consumers of caffeine, your experimentation on animals and your reading on the subject, state whether or not on the whole the consumption of from one to one and a quarter grains per day of caffeine would have any effect on the human health, taken indiscriminately by the young and old, and in connection, say with six or seven ounces of carbonated water, and if so, what the effect would be.").

Mr. Sizer: He says taken indiscriminately by the young and the old. If he wants to ask him what effect it would have upon the health generally, he may do so, but not put it in that way.

Mr. Miller: I will try to conform to counsel's suggestion.

Mr. Miller: I will adopt that phraseology, and ask you what effect it would have on the health generally.

The Witness: It would have a deleterious effect which might or might not be demonstrable —

Mr. Sizer: (Interrupting). I object to that answer. He was asked as the effect it would have. He may state the effect without expressing his opinion—that is a conclusion to be drawn by the Court and jury. He may state the symptoms that would result, but it is not for him to decide whether it is deleterious or not.

Mr. Miller: He is a practitioner of ten years standing.

Mr. Sizer: Well, the question of whether or not it is deleterious, is a question for the jury.

Mr. Miller: I didn't ask for the witness to give that.

The Court: Without stating what the effect would be, whether it would be deleterious or otherwise, let his state what effect it would have in his opinion; that portion of the answer as to whether it is deleterious is excluded.

The Witness: In a majority of individuals who are suffering from a certain amount of nervousness, the effect which is very excessive, in cities, crowded cities where insufficient air and insufficient exercise is obtained, would have an increase in their nerous system, would have increased irritability, sleeplessness, if present, or not refreshing sleep, we might have disturbances of the digestion; those are some that occur to me at the present—and we would probably have, as we have a great many tonic substances, changes leading to premature old age, that in changes in the vascular system.

Q. What do you mean by toxic symptoms?

A. Toxics, poisons.

Mr. Sizer: (Interrupting). I object to that, he is getting back to the same proposition that I objected to a while ago, he may state what the symptoms are but not what the result is.

Mr. Miller: Toxic is not a word that is ordinarily used by the common laity.

Mr. Sizer: He explained what he means would be poisonous symptoms.

The Court: Well?

Mr. Sizer: Let him state what the symptoms are.

Mr. Miller: He has done that.

Mr. Sizer: You say he has already stated the symptoms and he now merely proceeds to characterize them as toxics, and that part of the answer be stricken out.

Mr. Miller: He is better qualified to speak than the av-

erage man as to what is a toxic symptom.

The Court: The word "toxic" is a medical term and I think that you may ask if the witness used it in a medical sense, and if so I think he can express his opinion of the use of the word, whether he used it in a technical or non-technical sense.

Mr. Sizer: We desire to note an exception.

BY MR. MILLER:

Q. Is the word "toxic" a medical term as used by medical text writers generally to express a particular condition, and if so, what is the condition that is meant by the word "toxic" as used by the medical writers and as you have used it?

A. Toxic symptoms mean poisonous symptoms as expressed by medical writers; it means symptoms foreign to the normal physiological functions.

Q. State whether or not as a part of your course of study you were required to study and take a course in botany and whether or not you have been compelled to refer to the study of botany more or less since the beginning of your professional career.

A. Yes, I have studied botany to a certain extent, but not extensively.

Q. Are you sufficiently acquainted with it to state who are the recognized standard authorities on botany?

A. Yes.

Q. Who are they?

A. I have used a certain amount of botany in my teaching, the Doctor Cramer of Philadelphia and Doctor Rusby, are the best authorities.

Q. That is the Doctor Rusby who has been present here as a witness?

A. Yes, sir; Doctor H. H. Rusby, I think.

Q. State whether or not they are generally recognized as authorities throughout the country on that subject.

A. Oh, yes.

Q. As respects organic changes in the brain that might be discernable in the case of caffeine habitues who might be suddenly killed and the brain undergo microscoptic examination, I will ask you to state whether or not it is reasonably probable that any organic changes would be noted by an investigation of the brain under those conditions, and if not, why not.

A. No, sir; I don't think with the present knowledge or with our present methods we can decern very fine changes in the nervous system; in fact, most insanity, especially general paresis—general paralsys, and senile

insanity, arteriosclerosis of the brain,—with the exception of those two and the diseases—that is, brain lesions coming in infants, except those two—I think it has been impossible, for the authors do not agree on the demonstration of any changes in the brain tissue.

Q. Are there, or are there not various other forms of insanity which require persons to be confined?

A. Oh, yes; chronic melancholias and chronic manias, paranoaics. They are, of course, very serious diseases and frequently incurable and require confinement; yet, as far as I know from my reading, I have not found that they showed brain lesions, or in talking with neurologists.

Q. State whether insanity is a disease of the brain.

A. Yes; decidedly.

Q. Are you prepared to speak as to the relative tolerance of man, and the lower species of animal life as to caffeine, or have you made any experiments or investigations along that line, and if so, tell us relatively what it is, pound for pound of body weight.

A. I have made no laboratory experiments, but from reading I have determined that it was about one to forty; that is, caffeine was forty times, about forty times more toxic, more poisonous to man than it was to rabbits; I think the ratio in frogs would be about that as compared to man. That is, taking the fatal cases of man—taking the fatal doses in man, the cases that occur in the literature and also the fatal results on rabbits.

CROSS-EXAMINATION.

BY MR. SIZER:

Q. Doctor, you have given so far as you know or can state all the symptoms that result from the use of caeffine by man?

A. No, sir: I don't say so; I may have omitted some.

Q. Well, I say you have given all that you recall?

A. Yes, at the time.

Q. And those are what you call toxic symptoms?

A. They are some what I call toxic symptoms.

Q. Those are toxic symptoms which you referred to a while ago when you said toxic symptoms resulted from the use of caffeine?

A. Yes, sir.

Q. Now, Doctor, the most toxic symptoms or the strongest toxic symptoms you ever observed in any one from the use of caffeine, were those you observed in yourself when you took those seven grains at one time?

A. No, not necessarily; they were the most acute toxic

symptoms. I have observed more serious chronic symptoms in patients.

Q. You say they were the most acute in your case?

A. Yes, sir.

Q. And you took seven grains in one dose?

A. Yes, sir.

Q. And that is equivalent to about four strong cups of coffee taken one right after the other?

A. Well, let me see—you count one cup of coffee as containing only two deci— grams, —yes, just about four or five.

Q. How long did it take you to recover from the effect of those seven grains of caffeine?

A. It took me about—oh, four or five days, possibly.

Q. Four or five days.

A. Yes, sir.

Q. So as far as you can tell us at the end of four or five days there were no injurious effects observed or any symptoms from those doses of caffeine?

A. In so far as I could tell. Of course I don't know what effect it might have had on my metabolism.

Q. I want to ask you from your knowledge, don't testify about something you don't know, —so far as your knowledge goes?

A. Well, —

Q. At the end of four or five days the symptoms had disappeared?

A. The obvious symptoms.

Q. What kind of symptoms are there that are not obvious?

A. I should say obvious effects.

Q. I am asking you about the symptoms.

A. The symptoms had disappeared; yes, sir.

Q. In addition to these two experiments on yourself I believe you say you derive your information as to the effect of caffeine from the literature and from what you have observed in others?

A. Yes, from the literature, animal experimentation and from what I have observed in others.

Q. And the animal experimentation that you have conducted was on frogs, was it not?

A. Yes, sir.

Q. By injecting the caffeine in its pure chemical state into their veins?

A. No, into the ventral lymph sacs, and also into the muscles direct.

Q. Into the bare muscle?

A. Yes, sir.

Q. How much caffeine did it take to kill a frog, or the frog, that you experimented on when you injected it into the ventral lymph sac?

A. I don't remember precisely, —I think it was —

Q. (Interrupting) Did it take as much as seven grains?

A. No, sir; much less. I don't remember. I did no distinct reported research. It was experiments I made for students or with students.

Q. You say that caffeine will produce coagulation of the muscles?

A. Yes, sir.

Q. But it will not do that unless it is applied directly to the muscle, will it?

A. Yes, sir; it will do that if injected into the artery going to the muscle.

Q. Well, into the vein?

A. No, into the artery.

Q. And unless it is injected directly into the artery which carries blood to the muscle, the use of caffeine will not result in any coagulation of the muscle?

A. It will in frogs.

Q. Will it in human beings?

A. I don't know that it has ever been tried in human beings.

Q. You never tried it in human beings?

A. No, sir.

Q. You gave a deposition in this case some time ago?

A. Yes, sir.

Q. And in that deposition you were asked this question and didn't you make this answer:

"Q. Doctor, these experiments with caffeine to determine its coagulating effect on the muscular tissue. Must not the caffeine be brought into contact with the muscles, that is the skin taken away from the muscles, or will the action occur on the muscle when the caffeine is administered by mouth?

"A. No, it has to be applied directly."

A. Yes, sir; I meant in warmblooded animals; I did not mean in frogs.

Q. You are testifying in that deposition about experiments conducted on frogs?

A. Yes, sir, about a whole lot of things.

Q. Did you testify about experiments conducted on frogs with caffeine?

A. Well —

Q. (Interrupting). Did you say anything about conducting experiments with caffeine on other animals?

A. I don't remember.

Q. Well, didn't you state at the time that you had not conducted any experiments on any animals except frogs?

A. I don't remember that.

Q. Don't you remember now whether you ever conducted any experiments on any other animals?

A. Yes, sir; of course I have.

Q. Did you?

A. Yes, sir.

Q. Well, during that examination —

A. (Interrupting) During my course, practically every year I have injected caffeine into other animals, in to the rabbits, and experimented with rabbit tissue, muscular tissue in rabbits, but no research; I never did any research.

Q. In conducting these experiments on warmblooded animals, also on frogs, you were asked the question whether or not coagulation of the muscles would result in those cases directly to the muscles and you said it would not, didn't you?

A. I said that means warmblooded animals.

Q. Warmblooded animals?

A. Yes, sir.

Q. Well, you had been conducting experiments on frogs and had testified, when you were asked with reference to those experiments, you stated it would not produce those results unless applied directly to the muscle.

A. Well, that is only a minor question.

Q. I didn't ask you that.

A. If you inject into the artery of lymph sac it causes coagulation either way.

Q. But I asking your attention to what you testified there, and ask you if it was not the truth, was that the fact as you stated in that deposition? I say, was that a truthful and correct answer to that questiion?

A. I would like to have it repeated.

Q. All right. I will read it to you. (Reading).

"Q. Doctor, these experiments with caffeine to determine its coagulating effect on the muscular tissue. Must not the caffeine be brought into contact with the muscles, that is the skin taken away from the muscles, or will the action occur on the muscle when the caffeine is administered by mouth?"

"A. No, it has to be applied directly."

A. That question was in relation to its administration by mouth; I do not say that it would be produced in administration by mouth, I stated it had to be injected into the ventral lymphs sacs.

Q. Well, it that a correct answer or not?

A. Will you read it again please?

Q. All right, I will read it to you again. (Reading).

"Q. Doctor, these experiments with caffeine to determine its coagulating effect on the muscular tissue. Must not the caffeine be bought into contact with the muscles, that is the skin taken away from the muscles, or will the action occur on the muscle when the caffeine is administered by mouth?"

"A. No, it has to be applied directly."

A. No, that is not a correct answer; it ought to be modified, that has to be modified.

Q. How ought that to be modified?

A. That only in frogs will you obtain coagulation of the muscle when the caffeine is injected into the ventral lymph sac, but inwarmblooded animals it has to be applied directly to the muscles themselves or in the artery going to them.

Q. Well, man is a warmblooded animal?

A. Yes, sir.

Q. You could not produce coagulation in man by introducing caffeine in any amount in the mouth?

A. No, sir; absolutely not. You would kill man by paralysis of the heart and respiration long before that.

Q. You never knew a man to be killed by paralysis of the heart and respiration from the administration of caffeine through the mouth?

A. No, sir; not from personal experience.

Q. Have you ever heard of any case of that kind?

A. Yes, sir; from medical literature.

Q. What case do you know of in medical literature where paralysis was produced by the administration of caffeine through the mouth?

A. I knew of a case in Zenetz, who was quoted by Lemaine, of a young woman, unwell, who thought of taking caffeine at the time for some purpose of her own, and she took one-tenth of a gram—I think repeated it a number of times, repeated it eight or ten times, and she died suddenly with symptoms of heart failure.

Q. Now, that is the case testified to here the other day?

A. Yes, sir.

Q. From Zenetz?

A. Yes, sir.

Q. Now, when you were asked about that on your examination in Boston —

A. (Interrupting). I told you at the time I had read of a case but I didn't remember the author.

Q. You stated that you had read about a case but could not state and were unable to state anything about it?

A. Yes, sir.

Q. Is that the same case?

A. I don't know.

Q. You have not found out anything more about that case?

A. No, sir; that Boston case was another one.

Q. The Zenetz case is the only one you have read about?

A. No, sir; a number of others, Lemaine states four or five others.

Q. That was also testified about here the other day?

A. Yes, sir.

Q. When did you read about those cases, since you came here to testify?

A. Yes, sir.

Q. The books were furnished to you by Doctor Kebler or adverse counsel?

A. At my request, yes.

Q. You never had seen those cases during all of your research and learning and investigation until you came here to testify?

A. I had not made any specific investigation, any research upon caffeine, so that my reading of literature was general and therefore I had not looked up all the cases which occurred. It is absolutely impossible for a pharmacologist to look up every case that occurs anywhere in the literature of any drug. We simply have to take what we get from reading certain numbers of medical journals or pharmacological journals, and then when we do special research on the subject then we go and take all the literature and look up all the cases. I have never had the opportunity to do so and I was absolutely unprepared for this trial. I simply came on and had to get my information from the published information.

Q. Your attention, Doctor, was called to that identical point when your deposition was taken in Boston some six months ago?

A. Yes, I told you then what I knew.

Q. And you knew then that you were coming down here as a witness?

A. No, sir; I did not. I did not know I was coming down here as a witness earlier than two hours before I started. I had a slight inference of it but I certainly would not prepare myself on inference.

Q. You had a slight inference and therefore did not prepare yourself?

A. No, sir; as it was not definitely settled.

Q. How was that?

A. It was not definitely settled until within two or three hours of my catching the train.

Q. And although your attention had been called to that particular subject, you didn't take interest enought in the subject to find out whether there was a case of that kind?

A. No, sir. I was busy with other things. I believed that I was through with the testimony at the time I gave my deposition.

Q. In what way have experiments been conducted on rabbits to ascertain that the toxic effect of caffeine is forty times greater on man than it is on a rabbit?

A. Experiments have been made by feeding caffeine per mouth and also injecting it subcutaneously, and the toxic dose—let me look it up from my notes, if I may! I will tell you what the toxic dosees are. Now, Doctor Salant in —

Q. (Interrupting). I am not asking you to reiterate somebody's statement.

A. I made no experiments.

Q. Yes.

A. Except what I obtained from literature which is, of course, our right as scientific investigators to take the literature.

Q. And the literature leads you to the conclusion as an expert that the toxic effect of caffeine is forty times greater in man than in rabbit, that is in your conclusion, is it?

A. Yes, sir.

Q. What is the toxic dose according to the same information you have, in the rabbit?

A. A toxic dose is two and a quarter grains per pound in the rabbit.

Q. Two and a quarter grains per pound?

A. Yes, sir.

Q. And you mean by that a dose will produce what you have referred to in your testimony heretofore as toxic symptoms?

A. No, sir, It will produce death.

Q. Will produce death?

A. Yes, sir.

Q. How much would that amount to, taking it two and a half grains per pound—what would that amount to in the average rabbit?

A. To the average rabbit?

Q. Yes, say four or five pounds.

A. Four or five pounds, it would amount to about nine grains.

The Court: That is the lethal dose?

The Witness: Yes, sir.

BY MR. SIZER:

Q. Nine grains of caffeine to a rabbit?

A. Yes, sir.

Q. How would that be given, by mouth or injection?

A. That was given by mouth?

Q. What was the fatal dose given by injection?

A. By injection?

Q. Yes.

A. One-tenth of a gram per kilo, about one grain per pound.

Q. Given by injection, about one grain per pound?

A. About that, approximately.

Q. And that would be about how much for the entire rabbit?

A. About four grains.

Q. For the entire injection into the vein?

A. Yes, sir.

Q. And nobody has made any experiments on the human being to ascertain what the fatal dose of caffeine or the lethal dose of caffeine would be?

A. No, sir; but our information comes from fatal cases by caffeine —

Q. (Interrupting). Your information comes of those cases reported by Zenetz and Lemaine and those other authorities which you have read since you came here.

A. Yes, sir; and Allard.

Q. That case from Allard, that is not a case of death from caffeine?

A. Yes, sir; I believe it is. It is so stated in Sollman's book.

Q. Isn't it a fact that that was a case of death resulting from theocin?

A. I believe not.

Q. Do you know?

A. Yes, sir;

Q. You know that it was not a case resulting from theocin, but that it was a case of death resulting from caffeine?

A. I have read it carefully; he stated the man died from six-tenths of a grain of caffeine.

Q. Well, isn't it a fact that that man had Bright's disease?

A. I don't know.

Q. Do the reports show that that man had Bright's disease?

A. I don't remember.

Q. You don't remember?
A. No, sir.
Q. And the Zenetz case?
A. Yes, sir. That is another case you can take.
Q. You don't know about that case?
A. No, sir.
Q. Whether the man in the Allard case had Bright's disease or not?
A. In the Allard case?
Q. Yes.
A. No, I do not.
Q. Now, these rabbits as to which you have testified as to the lethal dose—if these rabbits had been suffering with pneumonia or diptheria or anything of that kind, would that have had any effect on the amount of caffeine that it would take to kill them?
A. Yes, it would possibly.
Q. Well, it would not take much caffeine to kill them under those circumstances?
A. Well, in a laboratory people as a rule use normal rabbits.
Q. I am not asking you what they do as a rule.
A. All pharmacologists do.
Q. But I asked if the rabbit had been suffering with any of those diseases a much less dose of caffeine would be fatal than if in good health?
A. Not if the rabbit had been suffering, but if it was suffering.
Q. I mean at the time, if the rabbit was suffering.
A. Yes, I presume so.
Q. Isn't it a fact, Doctor, that cases are known in literature in which human beings have recovered from a dose of as much as 100 grains of caffeine?
A. I don't know that is the case; I have not read that case.
Q. You never read of that kind of a case?
A. No, sir.
Q. Where 100 grains of caffeine had been administered to a human being and he had recovered?
A. Let me see—I have read of a case, I think of Cushman where he had taken a dram, of the citrate of caffeine, I think that is it, a dram,—took sixty grains, if I am right. I don't know much about the English system —
Q. (Interrupting). But you do remember of one case?
Mr. Miller: Was that citrate of caffeine?
The Witness: Yes, sir.

BY MR. SIZER:

Q. And that contained about sixty grains of caffeine?

A. No, sir; half of that, thirty grains.

Q. Thirty grains?

A. Yes, sir.

Q. And you don't remember that case where a man took 100 grains of caffeine and recovered?

A. No, I never saw that case.

Q. In this case you refer to from Zenetz, does the report state how long it was after she took the last dose of caffeine before she died?

A. Yes, I think in a very short time.

Q. Well, do you recall that the report states the length of time?

A. I think so, I can't remember.

Q. You can't remember?

A. No, sir; I believe it says in a very short time. It was taken through a day, say one-tenth every two hours and at the end of the last dose she died suddenly.

Q. She died suddenly after the last dose?

A. Yes, sir.

Q. How long?

A. She had shown toxic symptoms before

Q. How long, I say.

A. I don't remember.

Q. The report does not show it?

A. I think it does; I think it shows shortly after, I don't remember the details.

Q. Quite suddenly?

A. Yes, sir.

Q. What symptoms had she developed betwen the taking, of the first and last dose, according to the report?

A. She had displayed symptoms of excitation, and I believe syncope.

Q. Of syncope?

A. Yes, sir.

Mr. Miller: What do you mean by that?

The Witness: That means sort of a faint or weakness, a symptom of weakness, heart weakness.

BY MR. SIZER:

Q. Was there anything in that report to show whether that patient was a perfectly well woman before she commenced to take those doses of caffeine?

A. Yes, sir; there was. The author stated that she was absolutely free from any organic lesion.

Q. No organic lesion?

A. Yes, sir.

Q. That does not indicate necessarily that she was not suffering from some other kind of disease, does it, organic lesion is not the only kind?

A. What kind of disease do you mean?

Q. Well, any kind. Does the report show she was absolutely free from any disease?

A. Yes, sir; I think it does.

Q. Does it, Doctor, mean, — does the report show ——

A. (Interrupting). He said she was a normal woman, free from all organic lesion.

Q. Free from organic lesion?

A. Yes.

Q. Well, the words, "Organic lesion" do not exclude the possibility of her having been suffering from some disease?

A. From having insanity, of course not; she might have insanity, — but still, if she had insanity, it is reasonable to suppose that it would have been stated.

Q. Well, she might have had various functional derangements, might she?

A. Yes, sir.

Q. Yes.

A. Yes, sir; but no functional derangement would have any effect on the toxicity of the caffeine. It would not have any effect on the toxicity of the caffeine.

Q. Does not that report show she was suffering from some ailment?

A. No, she was unwell.

Q. Unwell?

A. Yes, sir.

Q. Well, that shows she was.

A. No, sir; that is a normal condition.

Q. It is the normal condition of people to be unwell?

A. Yes, to have menstruation.

Q. And this woman was therefore unwell?

A. Yes, sir.

Q. Does the report show that she had any other sickness?

A. Not that I remember of.

Q. Now, she took about how much caffeine before she died, in these doses that you have stated?

A. She took citrate — three grams, that makes one and a half — twenty-two grains, I believe, approximately.

Q. Within what period of time?

A. Two hours apart, I think it is stated.

Q. Does not that report show this about that case, that the woman was sitting conversing quietly with her friends between the time she took the first dose and the

time she took the last dose, and that when she took the last dose she suddenly died?

A. She was not sitting quietly all the time, it was while she was sitting quietly conversing with her friends that she suddenly died, but she had not been all the time she had been sick.

Q. Well, is that a symptom of caffeine poisoning to be sitting quietly conversing with a friend and then suddenly drop off dead?

A. The dropping off dead is.

Q. Is that the manner in which you would expect a toxic dose of caffeine to act, a person sitting down quietly and talking to other people?

A. There are thousands of ways in which it may act. Not in any drug do we have the same symptoms in all cases; and the manner of action may vary a great deal, so we have a great many symptoms of different drugs in pharmacology and ways in which death occurs. It does not occur in only one way, sudden death is one way in which caffeine may produce death.

Q. Are those symptoms symptoms that would ordinarily follow from what you call a toxic dose of caffeine, — that is, the patient sitting down and quietly conversing until she dies,—ordinary symptoms following a toxic dose?

A. I don't think it would be the invariable way.

Q. I say, is that the ordinary way — are these the ordinary symptoms of a toxic dose of caffeine?

A. In dogs you obtain sudden death from paralysis of the heart just as apparently occurred in this case.

Q. Well, I am not talking about dogs, but to get back to that question, you say that the woman was sitting there quietly conversing with her friends up to the time she died, are those the ordinary symptoms, the way in which a person ordinarily acts?

A. It is not ordinary.

Q. It is not?

A. The sitting quietly and talking is not the ordinary way, no.

Q. Well, it is just exactly the opposite of the ordinary way in which a toxic dose of caffeine would manifest itself, is it?

A. No, I say they would vary; there are many, very many variations in how symptoms may occur, and it might be that at the last moment she had recovered sufficiently from the first dose in order to be able to talk with her friends, that I will admit is rather exceptional, but she had shown toxic symptoms before this; that she could talk with her friends was somewhat exceptional,

but still that certainly would not affect our belief of that the caffeine was responsible for the paralysis of the heart.

Q. No, if you want to believe it.

A. Even though we do not want to believe it, we have to, you would be forced to do it.

Q. Well, the symptoms that she displayed immediately preceding her death were not symptoms that ordinarily follow from the taking of caffeine in toxic doses, that is true is it not?

A. Not always follow ——

Q. Is it a fact they do not ordinarily follow?

A. No, I should say not always.

Q. Are they such as would ordinarily follow—just answer that, please.

A. No.

Q. Now, Doctor, I want to ask you if you are familiar with some medical works that I am going to refer to, on pharmacology and Materia Medica. I refer you to Bartholemew on Materia Medica and Therapeutics.

A. I have seen it.

Q. Is that a standard authority?

A. Not now, it is an old book; that used to be the standard years ago, but pharmacologies have changed a great deal since.

Q. Well, the last edition was published in 1900, was it?

A. I don't remember, I saw it ten or fifteen years ago.

Q. Well, how about Butler's textbook on Materia Medica, therapeutics and pharmacology, is that a standard authority?

A. I know very little about that, I have never used it.

Q. How about Bunge's Physiologic and Pathologic Chemistry, is that a good authority?

A. Bunge himself is a good experimenter, his writings are erratic.

Q. He is a good man, but he does not write a good book?

A. He has written poor articles, too.

Q. So you don't consider that a good authority, then?

A. No, sir.

Q. How about Sollman's textbooks of pharmacology, including therapeutics, Materia Medica, etc., is that a standard work?

A. Yes, sir.

Q. How about Pavy on Food and Dietetics?

A. Pavy?

Q. Yes.

A. I don't know, I am not prepared to pass on it.

Q. You don't know that?

A. No, sir.

Q. Well, Hutchinson on Food and Dietetics, is that a good authority?

A. Yes, a fairly good book.

Q. Lusk on the Science of Nutrition?

A. I have not read that.

Q. You don't know about that?

A. No, sir.

Q. And the only ones you are prepared to recommend are Sollman and Hutchinson?

A. I didn't say I was prepared to recommend them.

Q. Do you say they are standard authorities or not?

A. Yes, sir.

Q. Both standard authorities?

A. Yes, sir. Both known authorities.

Q. Now, isn't it a fact, Doctor, that caffeine as taken in ordinary beverages is rapidly eliminated from the system?

A. Is rapidly eliminated?

Q. Yes.

A. No, I should not agree with that.

Q. You could not agree with that?

A. No, sir.

Q. Do you know how long it takes for the effects of caffeine contained in the ordinary cup of coffee to pass out of the system?

A. There is no method to determine the position the caffeine is left in, in association with the nerve cells — judging from physiological effects.

Q. I am not asking you that — the effect passes off in a few hours, doesn't it?

A. Not always. A cup of coffee taken in the morning may show sleeplessness at night in susceptible individuals.

Q. That would be a very exceptional case?

A. No, sir; I know quite a number of patients thus affected; I am myself and other members of my household.

Q. Take a cup of coffee in the morning —

A. Yes, sir.

Q. And be affected at night?

A. Yes, sir.

Q. How many cases of that kind do you know?

A. Probably half a dozen.

Q. Those are exceptional cases?

A. Yes, sir; they are exceptional in that they act over such a long time.

Q. As a rule is it true that the effect of a cup of coffee will pass away in a few hours?

A. The immediate effect.

BY A JUROR:

Q. What is your name?

A. Tyrode — T-y-r-o-d-e.

BY MR. SIZER:

Q. Doctor, you referred in your examination in chief to what you call reserve energy, that simply means that a man may have stored up in his body energy, and it is continually being drawn on every time a man does anything?

A. Yes, sir; continually being reformed if proper rest is given to the organism.

Q. And in order to draw on energy or induce action, there has to be stimulation?

A. Stimulation, — what do you mean by that?

Q. What is stimulation? I will ask you that, then.

A. Stimulation is a very broad term.

Q. Stimulation?

A. Yes, it means the irritation, the external irritation which may come to living beings producing a response by giving up of energy or force, or whatever it may be — externally.

Q. Now, didn't you testify in a deposition you gave in this case in Boston that all life was stimulation, that everything around us was sort of stimulation, did you say that?

A. Yes, sir; light, electricity, heat, cold, dust, wind.

The Court: That is, defining it in the sense in which it is used in the question ——

Mr. Sizer: I wanted to know what the witness meant by stimulation.

The Court: Well, ask him what he means.

BY MR. SIZER:

Q. If the stimulation is not too great, or is not so great as to require a man or an animal to do more than the normal capacity, then that is not injurious?

A. It depends on the character of the stimulation, whether normal or abnormal.

Q. Well, just to get my point, I will illustrate to you. We will take a horse, suppose a horse is standing on one side of a field ——

A. Yes, sir.

Q. And he sees something on the other side that attracts his attention, and he gallops toward it at a rather fast rate, he has exhausted energy?

A. Yes, sir; or he may or may not, it depends on the strength of the horse.

Q. He has used up some energy?

A. Yes, sir.
Q. In making that trip?
A. Yes, sir.
Q. And the object that he saw was the stimulation that induced him to put out the energy?
Q. Suppose now instead of seeing the object across the field, you hit the horse with a whip and he gallops at exactly the same rate and goes the same distance, he has exhausted the same amount of energy?
The Court: Those are perfectly obvious matters.
Mr. Sizer: I wanted to illustrate.

BY MR. SIZER:

Q. The exhaustion of energy is not always a disadvantage to a man, provided the reserve that is exhausted is supplied by the taking in of food and taking his needed rest?
A. Provided all the reserve is not exhausted and provided means are given for the restoration of the proper reserve.
Q. The exhaustion of reserve is a normal function of the organ, is it?
A. No, sir; not at all. Oh, no. We never normally exhaust our reserve, we do not come anywhere near it.
Q. I used perhaps the wrong word, the expenditure of energy is the normal function of the body.
A. No, sir; it is only the occasional one — we normally use the normal amount of energy which is formed from our food stuffs, but only in extreme instances, occasions of great strain — then we may call upon the reserve but the reserve is a reserve and is not for ordinary use.
Q. You are expending the reserve when you talk?
A. No.
Q. What are you expending?
A. Energy.
Q. That is energy stored up in your body?
A. Yes, sir.
Q. Is that the reserve?
A. It is the reserve in a certain sense but not the way you mean ——
Q. It is the energy stored in the body that you expend?
A. Yes, sir.
Q. And you expend it constantly?
A. Yes, sir.
Q. And if that energy is replaced by the taking of proper food and of proper rest, then no harm is done?
A. No, provided we leave proper balances behind — provided there is always a balance.

Q. Now, Doctor, in order to determine that a particular case of death results from a particular cause, you have to exclude the hypothesis of any other cause that may have produced it?

A. Yes.

Q. And in Zenetz' case that you referred to awhile ago, isn't it true that is not done so far as the report shows?

A. No, sir; it is not so — in the Zenetz case the autopsy showed normal conditions.

Q. It showed, you said, the woman was unwell.

A. She was having her normal periods and anything that is normal is not a disease — pregnacy is not a disease, neither is menstruation.

Q. It was not the condition in which she generally existed?

A. Yes, that is the condition in which a woman generally is at that time.

Q. Do you know whether her brain was diseased in any way?

A. No.

Q. Do you know whether she had any other physical ailment?

A. I have the statement of Zenetz who says she had no other organic lesion. I did not see the case myself nor did I examine it personally.

Q. For all you know and all that report shows, she might have died from apoplexy?

A. No, sir.

Q. How do you know?

A. I have Zenetz' word for it. We all have to rely on these authorities; if not, the work would be of no use.

Q. Well, Zenetz simply says she died suddenly after having taken the caffeine.

Mr. Miller: (Interrupting.) He has gone into it repeatedly. We have the article here ——

The Court: Yes.

BY MR. SIZER:

Q. Was there any postmortem examination made of that woman with respect to her heart?

A. You read the article.

Q. I am asking you.

A. I prefer to have it read.

The Court: Just state what you remember about it.

BY MR. SIZER:

Q. Was there any post mortem examination made of that woman?

A. I don't remember, sir.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Just a thought, Doctor, — this injection into the rabbits, or the frogs — I mean into the frogs, where the caffeine was used — did you mean that you injected pure caffeine or a dilution of caffeine in the water?

A. Dilution of caffeine — water, in solution.

Q. As to this Zenetz case, in that connection, you stated one reported by Allard. Where is he?

A. In Sollman's text book of Pharmacology.

Q. And what was the number of grains that killed in that case?

A. Six deci-grams.

The Court: And that is about what?

The Witness: Practically nine grains.

BY MR. MILLER:

Q. When you speak of so much per kilo, what does "kilo" mean, how many pounds?

A. A kilo means two pounds, approximately.

Q. Does the taking of food supply the result that follows the loss of sleep?

A. No, not by any means.

Q. Does the stimulation of coffee, — is the stimulation of the kidney or the over stimulation of it by the use of caffeine supplied by the taking of food?

A. No, sir.

RE-CROSS EXAMINATION,

BY MR. SIZER:

Q. That Allard case — is it a fact that the report of that case shows that death resulted from theocine?

A. That is not my recollection; my recollection is it resulted from caffeine.

Q. Have you the case here?

A. No, sir.

Q. Have you any report of it?

A. No, sir.

Q. Are you simply testifying from your recollection of it?

A. Yes, sir.

(Witness excused.)

Thereupon, at 10:10 o'clock A. M., the Court adjourned until 9 o'clock A. M., Monday, March 20, A. D. 1911.

Chattanooga, Tennessee,
Monday, March 20, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.
Appearances, same as heretofore.

F. P. MORGAN

resumed the stand for further examination and testified as follows:

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. Referring to the rabbits, to the experiments on the rabbits in 1908, I will get you to state as to the internal condition of rabbits Nos. 6, 7, 8 and 5, as numbered by you, if you were present at the autopsies held.

A. The rabbits showed inflammation or congestion of the stomach or intestines, or both.

Q. As to these rabbits which were sent across the street to the Bureau of Animal Industry, state whether or not when they either died or were killed by chloroform they were at once dispatched to the Bureau of Animal Industry and were kept in that institution until sent over.

A. Yes, sir.

Q. You were asked to file a list showing the dates of the feeding, what these rabbits were fed as reported to you by Doctor Fuller.

A. Yes, sir.

Q. As made up and reported by Doctor Fuller.

A. Yes, sir.

Q. The number of the rabbit, the time that it left after the feeding began, by whom the post mortem was performed — I will get you to state if you have prepared that list.

A. Yes, sir.

Mr. Sizer: I don't know who asked him to file any statement to that effect, as to these rabbits, based on what somebody else said, or told him. I have been objecting to any witness stating what he was told by somebody else and I object to any statement prepared by Doctor Morgan showing the diet of these rabbits based on the statements made to him by Doctor Fuller.

Mr. Miller: That is proven by Doctor Fuller, that he made up certain ingredients or mixtures, and gave them to this witness with a statement of what they contained, and we proved by this witness on examination in chief before that he fed in proportion to the statement as given him by Doctor Fuller and kept a memorandum of his feeding — I am sure I did and I think adverse counsel concurred in it;

I know your Honor stated that we might file the list, have this witness do so instead of going into detail, detailing a full report, but to make a summary of the feedings of these various rabbits, together with the numbers, and that was to be filed as Exhibit A to his deposition. I think I am right about the letter; at any rate, as an exhibit, and he said that he would prepare such a summary.

Now, of course, only in so far as we produce the doctors who performed the post mortems, and only in so far as we have already shown by Doctor Fuller that he properly reported to this witness the substance or the proportions that were fed the rabbits, do we submit that it would be competent, and I asked no further, and tha was limited to three doctors, Eichorn, Formad and Gallagher.

Mr. Sizer: I submit, may it please your Honor, that he should strike out of that list or paper or whatever it is the matters he does not personally know about and let him file the information he knows about. As I recall, what your Honor said was this, that he could file a list of the rabbits with their numbers, and showing what disposition he made of these particular rabbits personally.

The Court: Yes, where he sent them to.

Mr. Miller: That is all we have done.

Mr. Sizer: They asked him to file reports showing what the rabbits had been fed on, based on Doctor Fuller's statement.

Mr. Miller: That was held to be competent because this witness said he fed exactly in the proportion that Doctor Fuller said he gave it to him.

The Court: I think it is competent to show that he fed the rabbits certain things that were reported to him as containing such and such ingredients, and then, of course, if the ingredients were what Doctor Fuller said was the composition, it would make it up.

Mr. Sizer: I submit this would be competent, that Doctor Morgan could show he fed these rabbits a certain composition that was given to him by Doctor Fuller; he does not personally know what it contains.

Mr. Miller: We concede that.

The Court: Yes; you may add on that if it does not show, that it was prepared by Doctor Fuller and purports to contain such and such—that is not evidence of the fact, but that he fed them the composition according to Doctor Fuller, what he had reported it to contain, otherwise you cannot identify it.

Mr. Sizer: He could identify it in this way — if Doctor Fuller says the composition turned over to Doctor Morgan

was so and so — that could be proven ——

The Court: He has done that.

Mr. Sizer: I submit if he has, it is a mere hearsay statement from Doctor Morgan's stating that this mixture purported to contain such ingredients, and it would be inadmissible.

The Court: Otherwise there is no way to determine that. If Doctor Fuller had labeled the ingredients 1, 2, 3, 4 and 5, that would be the better way, but apparently that was not done but simply that the ingredients purported to contain certain things, and that is all that he knows about it, and the only way he could identify it is that he said a certain compound containing certain things — you may insert the word "purported."

Gentlemen of the jury, this is not evidence of itself of the fact that any of these substances did contain these ingredients — that you will have to get from other witnesses, but merely evidence of the fact that certain compounds were given to him by Doctor Fuller as containing certain things and then you will have to look to Doctor Fuller's testimony and the other testimony to see really what those things were; this witness personally knows nothing about them except that he got them.

BY MR. MILLER:

Q. I will get you to state, if you have not already stated, whether or not, assuming Doctor Fuller's statement to be correct to you, as to the component parts of the mixtures that the exhibit which you have filed, shows the proportion of caffeine or Coca-Cola syrup, as the case may be, that you received.

A. Yes, sir; that is according to Mr. Fuller's statement.

Mr. Sizer: I object to that question and answer.

The Court: The exception is overruled.

Mr. Sizer: We except.

Mr. Miller: I will state for the benefit of counsel that we are unable to get Doctor Eichorn, that we have Doctor Gallagher and Doctor Formad, and in so far as Doctor Eichorn's findings are shown, we have not Doctor Eichorn but we will have Doctors Formad and Gallagher here, and we will exclude those of Doctor Eichorn or we will give them if desired, but we are unable to get Doctor Eichorn here.

The Court: That statement does not purport to show what they fed the rabbit.

Mr. Miller: No, but to whom they were despatched — the veterinaries themselves will show what they found.

Mr. Sizer: This exhibit simply shows on its face that a rabbit of a certain number was fed with a certain substance and giving the dates of the feeding, the length of time fed, the post mortem ——

Mr. Miller: (Interrupting) It does not show what the result was.

Mr. Sizer: It does undertake to set forth what rabbits were fed, and this witness does not know and we insist it is inadmissible to that extent.

The Court: It is admitted only to the extent that they were fed with that on the hypothesis that the statement of the contents of these mixtures given them by Doctor Fuller was correct, and it may be so modified on its face to that effect — any statement otherwise would not be competent.

Mr. Sizer: We desire to have the statement modified in accordance with your Honor's suggestion before it is offered in evidence.

The Court: That may be done and you may withdraw the statement and make that modification. It may be done later unless you desire to ask him further.

Mr. Miller: I do not.

The Court: The jury will definitely and distinctly understand the extent to which it is offered.

Mr. Miller: Will you oblige me with a copy and file it so that I may ask Doctor Formad about it?

The Court: What were those four rabbits that you enumerated, 5, 6, or 7, or whatever it was?

Mr. Miller: They were known as the Coca-Cola rabbits?

The Court: And what were they fed on?

Mr. Miller: Fed on 30 cc. of Coca-Cola.

The Court: All right.

Mr. Sizer: This list does not contain a statement of the diet of any rabbits Doctor Morgan testified about and does not contain a statement of any that were fed simple syrup.

Mr. Miller: I would be glad to have them added.

The Court: I didn't ask him to put the ingredients, I didn't ask him to put that on the list — I just asked him to put on the list the rabbits that were fed simple syrup so they could be identified.

Mr. Miller: We have a detailed statement of all these experiments which I have offered to file, and would be glad to do so.

The Court: I didn't ask him that — I asked him to file the number of rabbits fed on simple syrup ——

Mr. Miller: I will ask Doctor Formad to take the witness stand.

(Witness excused.)

DR. ROBERT J. FORMAD,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Formad, what is your age, please, sir?

A. I am forty-seven.

Q. What is your profession?

A. I am pathologist with the Bureau of Animal Industry, Department of Agriculture.

Q. Where were you educated, Doctor Formad?

A. I graduated in veterinary medicine in 1888 and in human medicine in 1894, University of Pennsylvania, Philadelphia.

Q. When you say you graduated in human medicine, what was the degree given you then, Doctor of Medicine?

A. Doctor of Medicine.

Q. Were you or not afterwards connected with the University of Pennsylvania in any professional capacity, and if so, what?

A. Prior to my graduation I was acting assistant in histology from 1886 to 1888, the year of my graduation. After my graduation I was appointed demonstrator of histology in the veterinary department and was assistant in histology in the medical department. I remained in that capacity as a teacher in practical normal histology and during the year 1890, or it might be 1898, I was appointed lecturer on sanitary science inspection. During the summer of 1892 I went abroad and studied in Germany, in Berlin and Stutgart, pathology and sanitary science as applied to animals, and during the fall of that year I received the appointment of demonstrator of pathological histology and morbid anatomy in the veterinary department of the University of Pennsylvania. These latter two positions I occupied for about seven years.

Q. What do you mean by histology? Explain to the jury.

A. Histology is the study of the normal structures of the entire body, comprising the composition or make-up of the skin, of the muscles, and every part of the body, including the brain and nervous system.

Q. What do you mean by morbid anatomy?

A. Morbid anatomy is the study of the disease changes which are seen by the naked eye in appearance, the so-called gross lesions distinguished by the unaided eye.

Q. Is there or not any aid or mechanism employed to aid the eye in detecting changes which the eye itself un-

aided by them is unable to detect?

A. Yes, sir; that is done by the study of pathological histology, the minute histology of the diseased tissues where the microscope is employed.

Q. The microscope?

A. Yes.

Q. Now state whether or not you took employment with the Bureau of Animal Industry, and if so, in what capacity and about when.

A. I was appointed as pathologist, or assistant, rather, in pathology in 1906.

Q. How long have you been connected with that Bureau and what is your present position?

A. I am at present assistant in pathology in the Bureau of Animal Industry.

Q. Have you been connected with the Bureau continuously since your employment?

A. Yes, sir.

Q. If you received any rabbits for the purpose of pathological examination, and if you made such examination, from the Department of Agriculture during the years 1910 and 1911 — I mean from the Bureau of Chemistry — if you received them from the Bureau of Chemistry during the years 1910 and 1911, and if they were numbered or tagged in any way, tell first the numbers of the rabbits that you received, tell if you made a pathological examination of them.

A. Yes, I did.

Q. Now, give first the numbers of the rabbits you received.

A. The animals had a tag in their ear, usually the left ear, bearing a certain number. Those animals were brought over by the attendant, and received by me personally.

Q. Can you give the numbers of those rabbits, that is the tag numbers?

A. Yes, sir; I have them: Numbers 36, 37, 38, 39, and 40, Number 45, Number 50, Numbers 47, 48, 49, Numbers 42, 44, and 46.

Q. Prior to this time and during the year 1908, did you receive any rabbits from this Bureau, and did you or not hold post-mortem examinations of such rabbits?

A. Dr. Morgan brought over two rabbits which I posted in his presence, and dictated the notes to Dr. Morgan.

Q. That was in 1898?

Q. That was in 1908?

A. 1908.

Q. Did you yourself personally keep any notes in re-

spect to those two rabbits?

A. No, sir; because I made the post-mortems and Dr. Morgan took the notes in his book.

Q. Did you or not report the conditions correctly as you found them?

A. Yes, sir.

Q. Now, these other rabbits that you received in 1910 and 1911, and the numbers of which you have given, state whether or not you made and retained notes of your findings as to these rabbits.

A. I retained a copy of the original memorandum when the post mortem examination was made.

Q. Did you know at that time what was the trouble — was the trouble — or what if anything the rabbits had been fed on out of the normal feeding?

A. No, sir, I did not because we receive rabbits not only from Dr. Morgan but from Dr. Salant and for other investigations and post mortems. I made memorandum notes, a copy of which was usually sent over to the respective experimenters.

Q. Now, when you would receive those rabbits, the numbers of which you have given, from the Bureau of Chemistry, what was the ordinary course with respect to holding the post mortems — that is how long after receipt of them was it before you would post them, as you term it, or make the examination of the interior?

A. The usual course was to make the examination inside of an hour or so. If the animal was sent alive to be chloroformed, then the animal was placed in the chloroform box and chloroformed, and the examination made fifteen minutes after the animal was killed.

Q. Will you make and file as Exhibit No. 1 to your testimony, a statement of the rabbits that you posted or made an internal pathological examination of in the year 1911 by numbers as you have given them?

A. Yes, sir.

Mr. Sizer: I object to his filing the statement. I submit that that statement would not be competent.

The Court: What was that to contain?

Mr. Miller: Only the numbers. If we wanted to compare them with those of Dr. Morgan, it would be much more intelligible and certainly save time.

The Court: I do not see any objection. You may ask for the list of numbers.

Mr. Sizer: If that is all, I do not object to it, but I understood he asked for a record of the work.

Mr. Sizer: No, I did not ask for that; I just asked for the numbers.

Mr. Sizer: Then I don't object to the list of numbers.
The Court: He can file the list of numbers.

BY MR. MILLER:

Q. Now, Dr. Formad, did you first study the conditions of these rabbits as developed by the post mortem examination, with the naked eye or with the microscope?

A. The usual procedure in examining the animal is to see the general condition of the body.

Q. With or without the aid of the microscope?

A. Without the aid of the microscope.

Q. What kind of examination do you call that?

A. It might be called a casual examination to see whether the animal shows any marks of violence, any characteristic lesions of any sort that could be determined before the animal is touched.

Q. Does or not such examination reveal the fact ordinarily, as to whether or not the animal was in a healthful condition before he was killed?

A. It gives us only an approximate idea of the state, whether the animal has been starved, or whether the animal is in a good state of nutrition. It is only for a comparative view.

Q. What did you observe as to the general pathological condition of these rabbits which you have testified about by number, and state whether or not they were all of the same general class, and if there were any marked differences in any respect, tell what they were and as to how many.

A. In numbers 47, 48 and 49, the general condition of the body was fair or good.

Q. How as to the remainder?

A. In the remainder — and here I would have to take up the case individually — but in general terms, I could state that there was emaciation, from very marked emaciation to slight, so that there was a difference in the general appearance of the animals from those first three.

Q. That is, there was a marked difference between the three, numbers 47, 48 and 49, and the remainder of the rabbits?

A. Yes, sir.

Q. Now, leaving out numbers 47, 48 and 49, what was this marked difference to which you refer?

A. I have reference only to the external appearance of the body, state of nutrition.

Q. Now, what when you got on the inside of the body, the internal appearance — what, if anything were the marked distinctions?

A. The lesions which characterized most of the remaining animals and which was varying in degree of intensity, ranged from a fulness of the blood vessels in the organs in which are the chief seat of elimination, or carrying-off of the waste products, and which are the kidney and the liver — in those two organs I found a distension of blood vessels varying to a degree of congestion.

Q. What do you mean by congestion in that connection?

A. Congestion means a state when the blood vessels have passed beyond the normal increase in the quantity of blood, when there is an intense accumulation due to abnormal functional activity of the organ.

Q. Abnormal functional activity of which organ?

A. That depends on which organ is observed, if it is congestion of the stomach, you find it in the stomach, and if it is in the intestines, and so on. You may have congestion of any part of the body, of the surface as well as of the internal organs.

Q. What function was that that you have reference to in this case — what produced the congestion in this case, if you know or are prepared to state.

Mr. Sizer: I object to that. I would like to have the question divided. The first part is not objectionable, but the second part would be, unless he has stated that he knows definitely what did produce the congestion.

The Court: Was there anything in the appearance that would qualify, you, from your scientific investigations, to determine what caused the congestion — are you prepared to give an opinion as an expert on that subject?

The Witness: Yes, sir.

The Court: The exception is overruled. I think the objection to the double question is one for the witness to make, and I think he can answer from a scientific point of view.

BY MR. MILLER:

Q. Explain that.

A. A congestion in any organ is brought about by abnormal functional activity. We will find, usually, irritants are capable of producing such a lesion or such a condition.

Q. In this case, where you found an abnormal condition of the stomach, as I understand, by what might that have been produced?

A. At the time I examined the stomach, I had no idea what the animal was fed on or what its diet consisted of, and I could not form any opinion as to what brought it about, further than irritant or irritating substance was

injected by the animal which brought about the condition.

Q. What did you say was the condition of the stomach with respect to inflammation?

A. There was a distinct fulness of the blood vessels, and in some of the intestines, varying to a congestion. There were differences. In some, it was less marked and in others it was more marked.

Q. What was the condition of the walls of the stomach?

A. The inner lining, which is known as the mucous membrane, and which is the part which comes in contact with the food or anything that has to be digested by the animal, is richly supplied with blood vessels, and it is that part of the stomach which is the first to show any increase in the intensity of the blood flow.

Q. Now this, you say, was in a state of congestion?

A. Yes, sir; it was in a state of fullness in some of the cases and congestion in others.

Q. State whether or not the stomach or the lining of the stomachs were of the normal thicknesses.

A. In some of the cases there was little increase in thickening and what is known as induration, thickening.

Q. What was the condition of the intestines of these rabbits, barring the three, 47, 48 and 49?

The Court: What were 47, 48 and 49?

Mr. Miller: Those were the rabbits that were fed on the simple syrup, your Honor.

The Witness: In most of the cases there was a marked congestion in the upper part of the intestinal tract, especially the part following the stomach.

BY MR. MILLER:

Q. And by that you mean the small intestines?

A. The small intestines known as duodenum.

Q. What was the condition of the kidneys of these rabbits, leaving out the aforesaid numbers 47, 48 and 49?

A. In all of them there was a marked irritation, varying from a fullness in the vessels to a congestion.

Q. Were any of them in normal condition?

A. None of them were.

Q. What if anything did you find as to the livers of these rabbits?

A. Well ——

Q. (Interrupting) Leaving out the three always, when I refer generally I mean to leave out those three, 47, 48 and 49.

A. In all of these cases there was a congestion varying from slight to very marked — in some of the cases there were additional lesions, such as fatty conditions.

Q. Was this condition normal or abnormal?

A. It was abnormal.

Q. As to the average healthy rabbit?

A. Abnormal.

Q. What do you mean by a lesion?

A. A lesion is an appreciable sign, a change or alteration from the normal composition of a part or organ.

Q. Had you studied the interior of rabbits and held post mortems on them prior to the time of the holding of these, and were you holding post mortems on others during the same time?

A. During the entire period of my teaching, which began in 1886, I have upon animals collected tissues for microscopical examination.

Q. Including rabbits?

A. Including rabbits, dogs and other domestic animals; and at times I have made post mortem examinations on human subjects.

Q. Now, if you made any examination as to the brain of these rabbits, tell what you found there, leaving out the three aforesaid.

A. I have examined the brain and spinal cord in five cases.

Q. Give us those numbers, please.

A. 29, 36, 42, 44 and 46.

Q. Now, when you refer to numbers, state whether or not you mean the tag which the rabbit bore in its ear.

A. Yes, sir; the tag in the ear.

Q. What did you find as to the condition of the brain of these five rabbits that you examined especially?

A. The membranes covering the brain and particularly the innermost which is in direct contact with the brain and is known as pia matter, showed a distinct fullness of the blood vessels.

Q. How did you make that examination, microscopically or otherwise?

A. Macroscopically first and microscopically afterwards.

Q. What is macroscopically?

A. First by inspection of the naked eye, and secondly separation and staining of parts of the brain and examining them under a microscope.

Q. Are you acquainted with and do you understand the accepted standard methods for making the examinations to which you resorted?

A. Having acted in the capacity of lecturer and teached for a number of years,—nine years at the University of Pennsylvania and during the last two years as pro-

fessor at George Washington University, I feel competent in making examinations of these tissues.

Q. Explain what you found with respect to this outer coating of this surface and also this interior coating which you say you studied under the microscope.

A. The outer coating or dura matter did not show any appreciable changes; the inner or the pia matter in all instances, in these five cases, showed an extenuation of the blood vessels to the naked eye and a very marked distention under the microscope which was bordering on the line of congestion or intensified fullness of the blood vessels.

Q. What is the function of this inner covering that you say was distended?

A. It is a sort of protecting nutrient covering which dips in the folds of the brain and cord.

Q. And spinal cord?

A. Yes, sir.

Q. How, if at all, do the blood vessels come in contact with it or pass through it?

A. That membrane is made very largely of blood vessels and has a small supporting net work of fibrous tissues.

Q. And what does that supply?

A. It supplies or assists essentially in giving nutrition to the brain and spinal cord.

Q. Did you go any deeper into the matter of research and investigation with the aid of the microscope, and if so, what further did you discover with respect to the brain or brain cells?

A. In my particular examinations of the cellular constituents I found that there was not only a fullness in the blood vessels of the pia matter, or the covering, but also the capsular vessels creating the vessels of the cerebrum and spinal cord participated in that distension, but to a less degree.

Q. What do you mean by the cerebrum?

A. It is the large brain or the bigger portion of the brain. The brain consists of several parts and the cerebrum is called the large brain, and the cerebellum or small brain. As far as the changes in the cells and of the cells, we have essentially the ganglion cells. In those ganglion cells I found a diminution in the distenuable substance, which in technical terms is described as chromotolysi.

Q. What do you mean first by the ganglion cells?

A. They are the cells which produce the chief creation of the nerve impulse; the nerve fibers or the conducting wires holding the impulse are created or performed within the ganglion cells.

Q. What do you mean by this chromotolysi?

A. A diminution of the stainable substance of the composition of that cell.

Q. How did you ascertain that there was a diminution of that stainable substance?

A. By employing agents which have an affinity or for which the granules have an affinity.

Q. Is or not that a standard test, that is made for that purpose?

A. Yes, sir; it is.

The Court: A diminution in what substance, stainable substance?

The Witness: Yes, sir; stainable substance.

The Court: And how do you spell that?

The Witness: (Spelling) S-t-a-i-n-a-b-l-e.

BY MR. MILLER:

Q. What is the function of that stainable substance that you say was absent?

A. Well, the exact function of every constituent of the cell life is hard to determine, particularly the heart of the cell is the most essential part,—forming the brain which is the cytoplasma, and is the part which helps in the nutrition of the cell, but as to the exact significance of the final composition that would be difficult to express an opinion on.

Q. Is or not the absence of this stainable substance that you have described there, normal or abnormal?

A. It is abnormal.

Q. When you speak of employing substances or a substance that has an affinity to determine the presence or absence of that stainable substance, what do you mean by the word "affinity" in that connection?

A. It is a selective property of taking the stain or dye more intensely.

Q. Did you find any similarity of lesions in the five rabbits about which you have been testifying throughout — or was there or not a general similiarity throughout?

A. There was a decided similarity in the lesions in these cases.

Q. Those granules that you spoke of that were absent, do I understand the absence of them or the diminution of them compared with the normal?

A. The diminution as compared with the normal and such diminution is usually indicative of an early stage of degeneration.

Q. And by degeneration you mean what?

A. By degeneration is meant a destruction of a part of the tissues, a breaking down process.

Q. Now, in these three rabbits Nos. 47, 48 and 49, did you discover anything that was abnormal as respects the brains of these rabbits?

A. I did not, sir.

Q. Had you ever observed these lesions and changes in the ganglion cells you spoke of in other rabbits except those five about which you have particularly testified?

A. Do you mean whether I have ever seen similar changes or have you reference to the rabbits which were sent over from the Department of Chemistry?

Q. I mean those sent over from the Department of Chemistry, these five about which you have testified.

A. I have examined the brain and spinal cord only in five cases, in five of those rabbits, and I could not state whether there were changes in the others.

Q. I am not asking as to that, but I am asking as to whether or not in these five cases they differed from the examination that you made in divers other cases, and if so, whether or not these changes that you have observed were normal or abnormal.

A. They were abnormal.

Q. You have studied others under the microscope?

A. Yes, sir.

Q. In these three rabbits, 47, 48 and 49, did you find the same or different condition as to the stomach and intestines as compared with the remainder of the rabbits on which you held these post mortems?

A. They were practically normal.

Q. These three?

A. Yes, sir.

Mr. Miller: That is all.

CROSS-EXAMINATION,
BY MR. HIRSCH:

Q. Doctor, in order to ascertain the cause of death in animals, is it necessary to make a complete autopsy for the purpose of eliminating all possible causes of death?

A. I have not given any causes of death.

Q. I asked you the question as a pathologist.

A. Yes, sir.

Q. Have you ever made any autopsies on human beings?

A. Yes, sir; I have.

Q. Now, in these post mortems on human beings to find out the cause of death, do you usually stop with the post mortem examination of the heart?

A. No, sir; you do not.

Q. In examining a heart which is simply contracted,

and you cut it with a knife and you do not extend your examination any further, could you tell if the heart was diseased?

A. I could not. I will qualify this statement that there may be deleterious lesions or parisites which the knife may strike, but as to the final changes I would have to examine it microscopically.

Q. Doctor, taking the animals that you examined,—I got the numbers as follows, I wish you would follow me and see if I quote the proper numbers.

A. All right.

Q. Forty-seven?

A. Yes, sir.

Q. Forty-eight?

A. Forty-eight.

Q. Forty-nine?

A. Forty-nine.

Q. Forty-four?

A. Forty-four.

Q. Forty-five?

A. Forty-five.

Q. Forty-six?

A. Forty-six.

Q. Thirty-six?

A. Thirty-six.

Q. Fifty?

A. Fifty.

Q. Thirty-seven?

A. Thirty-seven.

Q. Thirty-eight?

A. Thirty-eight.

Q. Thirty-nine?

A. Thirty-nine.

Q. Forty?

A. Forty.

Q. Forty-two?

A. Forty-two.

Q. Now, Doctor, did you make a macroscopic examination of every one of those animals?

A. I made a macroscopic examination of every one of those animals.

Q. What organs of the body of each and every one of those animals did you make a macroscopic examination of?

A. I did not quite catch your question.

Q. What portions of the body of each one of those animals did you make a macroscopic examination of—of each one of them?

A. I would have to go into my notes because I could

not remember every individual case.

Q. Just refresh your memory, then.

A. Do you want me to start with No. 47?

Q. Just start with the most convenient one to yourself.

A. In Rabbit No. 49 I made an examination of the brain, the spinal cord, the membranes, the heart, the lungs, the liver, the stomach, the intestines, the kidney and the bladder.

In Rabbit No. 48 I examined the brain, cord, the heart, the lungs, the liver, the stomach, the small intestine, the kidney and the bladder.

In No. 47 I examined the brain, the spinal cord, the membranes or coverings of the brain, the heart, the lungs, the liver, the stomach, the small intestine, the large intentine, the kidney and the bladder.

In 46 I examined the brain, the cord, the membrane, the lungs, the heart, the liver, the stomach, the small intestines, the large intestines, the bladder, the spleen and the pancreas.

In No. 45 I examined the brain, the spinal cord, the coverings of the brain, the heart, the lungs, the liver, the stomach, the small intestines, the kidney, the bladder, the spleen and the pancreas.

Mr. Miller: What is that last?

The Witness: The pancreas, the sweetbreads.

A. (Continuing) In No. 44 I examined the brain, the spinal cord, the membranes, the lungs, the heart, the liver, the small intestine, the large intestine, the kidney and the bladder.

In No. 42 I examined the brain, the spinal cord, the membranes, the lungs, the liver, the kidney, the stomach, the small intestine, the large intestine and the heart.

In No. 50 I examined the brain, the spinal cord, the membrane coverings, the heart, the lungs, the liver, the stomach, the small intestine, the large intestine, the kidney, the bladder, the spleen and the pancreas.

In No. 40 I examined the brain, the spinal cord, the coverings, the heart, the lungs, the liver, the stomach, the small intestine, the large intestine, the kidney, the bladder, the spleen and the pancreas.

In No. 35 I examined the brain, the spinal cord, the membranes, the heart, the lungs, the liver, the spleen, the stomach, intestines, kidney, bladder.

In No. 38 I examined the brain, the spinal cord, the membranes, the heart, the lungs, the liver, the stomach, the small intestine, the large intestine, the kidney, the bladder, the spleen and the pancreas.

In No. 37 I examined the brain, the spinal cord, the

membranes, the heart, the lungs, the liver, the gall, bladder, the stomach, the small intestine, the large intestine, the kidney and the bladder.

In No. 36 I examined the brain, the spinal cord, the heart, the lungs, the liver, the kidneys, the stomach, the small intestine, the large intestine.

Q. Now, Doctor, as I understand you this is the macroscopic examination.

A. Yes, sir.

Q. That is by the eye?

A. Yes, sir.

Q. Now, in case of rabbits 47, 48 and 49, did you make a microscopic examination?

A. No, sir, because the macroscopic examination did not warrant any microscopic examination.

Q. And you did not make any microscopic examination?

A. I did not.

Q. Could you tell by your macroscopic examination as to whether there was any chromotolysi — did you make any bacterial examination of any of these animals?

A. No, sir.

Q. Then the congestion might be caused by bacterial infection, might it not?

A. If there was a disposing cause of bacterial origin. In other words, if the animal received any micro-organism in the way of an injection, or if it had any wound by which infection could have taken place, it might have been.

Q. The congestion might have been caused by bacterial infection?

Q. Doctor, in any of these animals, whether you examined them macroscopically or microscopically, did you examine the aorta?

A. Yes, sir.

Q. Did you mention it in going over them?

A. No, sir.

Q. You examined it?

A. As a general rule in opening the heart I opened the aorta.

Q. Did you examine it any further than simply looking at it, Doctor?

A. Only at the beginning in opening the heart.

Q. Did you know the sex you examined?

A. I did not mark it down, but I examined in making the post mortem — I invariably examined whether it was a male or female, to see whether there was any enlargement of the reproductive organs or glands.

Q. Did you notice any pregnancy at any time?

A. There was not.

Q. You said you were a histologist.

A. Yes, sir.

Q. Could you give me the histology of the human cell?

A. Yes, sir.

Q. Would you do so?

A. I will do so. A cell consists of delicate covering or membrane which envelops the cytoplasma, or protoplasm, inside of which is found the nucleus. The nucleus is surrounded by a delicate membrane of its own which is the nuclein membrane and which consists of the protoplasm somewhat different from that of the cytoplasma, insofar that they have a certain substances which have a great affinity for the same and which are called the chromatin. It consists of a delicate fibre which has an affinity for these.

Q. You stated the nucleus of the cell.

A. Yes, sir, it may have a nucleus or it may have a pura cucleus or a central zone which has additional parts which are not found in every cell.

Q. And the nucleus made up of what is known as nuclei*n* or nuclein?

A. They are.

Q. That would not be a part of histology — that is chemical?

Q. You talk about the condition of congestion of the liver and the stomach and the kidney.

A. Yes, sir.

Q. Now, as a matter of fact, might not this have been due to these animals that you killed by chloroform, due to chloroform?

A. No, sir.

Q. How do you know?

A. Chloroform kills by arresting the heart action, paralyzing the heart.

Q. Does not that lead to congestion?

A. If the animal would get the chloroform inhalations for a long period very slowly and gradually, it might lead to irritation or congestion of the lungs ——

Q. (Interrupting.) That might lead to congestion?

A. —— but not in the liver.

Q. Doctor, did you find anything in your microscopical examination different from your examination with the naked eye?

A. Now in which cases have you reference to?

Q. In those cases where you made both a macroscopic and a microscopic examination.

A. I made a microscopic examination only of the brain

and spinal cord, but not of the other organs.

Q. In other words, in all the animals you have enumerated, you only made the microscopic examination of the brain and spinal cord in the five animals?

A. Yes, sir.

Q. No other microscopic examination?

A. No, sir.

Q. You spoke of chromotolysi of the ganglion cell; how did you fix the brain tissue for the examination of these cells?

A. The tissues were fixed in formaldehyde, a ten per cent solution of formaldehyde.

Q. Did you fix up the slides generally fixed by pathologists?

A. Yes, sir; I did.

Q. Have you those slides with you?

A. No, sir.

Q. Now, Doctor, is it not your opinion as a pathologist, that if there had been any change, organic or otherwise, that you could have detected the change, organic or otherwise, under the microscopical examination?

A. If the change is not sufficient to be seen by the naked eye, it is probable of not enough organic disturbance of much consequence.

Q. I ask you by microscopic, not macroscopic.

A. Then I misunderstood your question.

Q. If there had been any changes, organic or otherwise, do you know whether or not, as an experienced pathologist, it could have been detected by microscopical examination?

A. Yes, sir.

Q. Could it have been detected?

A. Yes, sir.

Q. What is the difference you draw — I notice you use the word "congestion" and "full." What is the difference you draw between them?

A. The difference between the terms is only of degree of intensity in pressure, or distension of the vessels. In other words, we may have a physiological increase of one vessel, and we may have a fullness which goes beyond that, and if it goes beyond that, they have a state of congestion.

Q. You spoke of irritation. On what did you base your opinion concerning irritation; upon the appearance of the congestion only, is that the reason you say there was irritation?

A. Whenever we have an abnormally full blood of any part of an organ, there must be an irritant or a cause, which may either be slight or intense.

Q. Could not this cause come from an enormous quan-

tity of food or fluid taken into the stomach of the rabbit?

A. That would depend on the irritating quality of the food. Food in a normal state, would cause a slight physiological increase, but it would not cause congestion. If the material is more intense or more irritating, then it would cause a greater extent of distension of the blood vessels, which would lead on, or which would terminate in a congestion.

Q. Suppose an abnormal kind of food, or an abnormal amount of food were given to a rabbit, would not this cause congestion?

A. If this food is acting as an irritant in any way, yes.

Q. Doctor, did you have normal animals sent you at the time these animals were sent you so that you could make a parallel examination of the animals?

A. I have been examining normal animals for twenty-five years.

Q. Doctor, did you have animals sent to you that were kept under the same conditions as these animals that were sent to you?

A. No, sir.

Q. Does not a change or diminution in the stainable substances begin immediately after death?

A. Well, yes, but you could hardly say immediately. It would take a little while before the change could begin.

Q. What do you mean by little while?

A. That is, when the animal was killed or chloroformed, the body temperature would keep the tissues in approximately the same state in which they were before the animal was killed. On the other hand, if the animal was kept a number of hours particularly subjected to differences of temperatures, then the disintegrating changes might take place.

Q. Now, in those five animals, the brains and spinal cords of which you examined, how long after death did you make the examination of them?

A. They were examined within one or two hours after their decease.

Q. They were chloroformed, were they not, and if not, which ones were not?

A. These particular five that you refer to were not chloroformed by me, so I could not say.

Q. They were dead when they arrived at the Bureau of Animal Industry?

A. They were, yes.

Q. I beg pardon?

A. Yes, sir, they were.

Q. They were dead when you saw them, when they arrived?

A. Yes, sir.

Q. How do you know how long they died before you saw them?

A. I do not know that.

Q. Then, as far as you know, this change might have occurred after death — the chromotolysi.

A. If the animal has been kept a long period of time, there might be some degenerative changes alike but not identical.

Q. You said that there would be those changes in answer to my question a few minutes ago, but if they were kept about two hours ——

A. That the changes would take place in two hours?

Q. Yes.

A. Oh, no.

Q. That they would commence taking place two hours after death?

A. The changes would begin, but hardly those changes which I discovered.

Q. Could you distinguish between the changes you discovered and the changes that would take place after death?

A. If the animal had been kept a long time after death, then the changes would be ——

Q. (Interrupting.) How long?

A. That would depend on the temperature. For, instance, in some, decomposition and breaking-down of the tissue takes place comparatively rapidly.

Q. How do you know what the temperature was in the room where the animals were kept?

A. I do not know.

Q. How rapidly would it take place under different conditions of temperature?

A. Inside of a few hours. I could not stipulate the exact number of hours, but the temperature, would no doubt, have some bearing.

Q. I wish you would describe in detail exactly what you mean by chromotolysi of a nerve cell.

A. In studying the minute structure of a cell life, it is found we cannot see the finer parts of a cell unless certain agents or dyes, are used. The ordinary dyes have affinity for the part known as the nucleus. These dyes are spoken of as nuclein dyes. These dyes are used in general miscroscopical examinations when they wish to distinguish between cell fibres and the general arrangement of the body. It has been found in neurological work —the study of the nerve elements, that while the ordinary

substances which are employed in average miscroscopical examinations will suffice to show the kernel from the remaining part of the cell, they will not suffice to bring out the more delicate part. Nissl has employed a certain stain by which he could bring out granules that were not stained by other dyes. These granules were called Nissl granules, or the chromatical granules, and are quite numerous and quite uniformly distributed in the cells. Now, as to the result of the generation, or degenerative process, the composition of the protoplasm suffers a certain amount of breaking down. During this breaking down, tain substances pass out the cell and this dissolution of certain substances from the cell is technically spoken of as chromotolysi.

Q. Might not chromotolysi be due to the influence of chloroform?

A. I am not prepared to answer that question.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Kindly refer to your notes as to rabbits, numbers 50, 37, 38, 39 and 40, and state from those notes your recollection as refreshed therefrom, as to whether or not those rabbits were sent over dead from the Bureau of Chemistry or whether they were chloroformed after they came over to your Bureau.

A. Rabbits numbers 50, 37, 38, 39 and 40, were sent alive. Number 50 I chloroformed and autopsied March 7th. No. 37 I chloroformed on March 6th. No. 38 I chloroformed on March 8th. No. 39 I chloroformed and autopsied March 7th. No. 40 on March 7th.

Q. How about rabbits 47, 48 and 49, were they sent over alive?

A. Rabbits 47, 48 and 49 were sent over alive.

Q. Did you chloform those?

A. Those I chloroformed and made the autopsy of.

Q. Now, in these cases where you chloroformed the rabbits and then examined them, within what time did these examinations commence by you?

A. Usually within about ten minutes after the animal was taken out of the chloroform box, or rater, after animal was dead.

Q. Doctor, was there not anything in your naked eye or macroscopic examination that you spoke of, that warranted you in your opinion, in pursuing a miscroscopic examination, that is, with the aid of the microscope?

Mr. Sizer: I object to that question. He might ask him why he didn't make it.

The Court: I think that is what he means.

Mr. Miller: He asked him why and he said it didn't warrant it. I am bringing it out and ask him in order to explain one of Mr. Hirsch's questions— he asked him why he didn't make it and he said it didn't warrant it, and I asked him why he did not.

The Court: The exception is overruled.

The Witness: The microscopic examination is usually made if the lesions are sufficiently pronounced, or else if a minute examination is wanted by the individual sending the tissues for examination for some special reason, but as a rule, if the macroscopic changes are not sufficient, then nine chances out of ten, the miscrospic would be absent.

BY MR. MILLER:

Q. Now, as to whether or not these five rabbits that you examined the brains of under the microscope, had any infectious disease, or had been poisoned by bacteria, was there or not anything that you discovered there in your macroscopic or microscopic examinations which indicated that they had been poisoned by bacteria or that they had any infectious disease?

A. There was nothing which led me to believe there was bacterial infection, or bacteria poisoning, or that the lesions were brought about by the presence of bacteria.

Q. In what respect do these changes that begin to occur after death, differ from the changes which you say you observed, or the degenerating indications which you describe in your miscroscopic examinations of the animal brain.

A. The degenerative changes which take place after death are generally not confined—they are not only in the cells of the brain but go to every tissue in the course of time, causing disintegration, putrifaction, and by which is meant a bad odor, that is commonly understood by spoiled meat or spoiled part of the body.

Q. In instances where the rabbits or animals have not been dead longer than these which you chloroformed, did you ever observe these changes in the brain which you say you discovered by the aid of the miscrocopic examinatons, this diminution of the granular substance?

A. In the five cases that were examined microscopically, the animals was received dead, was not chloroformed, so I could not make any statement as to how long the animal was dead. It is usually as I stated——

Mr. Hirsch: I object to any statement as to what is usual unless he means he refers to his own experience.

The Witness: To my own—it is usually posted by me

within an hour or two after the animal is received.

Mr. Sizer: I object to that unless he shows he followed that in this case, it is immaterial what the Doctor may usually have done.

BY MR. MILLER:

Q. I will ask you ——

The Court: (Interrupting.) I substain the exception.

BY MR. MILLER:

Q. Well, speaking from your experience and observations of these five rabbits wherein you discovered the absence of granular substance, state whether or not the general internal appearance of the rabbit indicated to you that the degenerative process, which you have described in the brain and spinal cord, was due to the effect of long death, post mortem changes so to speak, changes occurring after death, or whether or not they were due to the reception of substances during life.

Mr. Sizer: I object to that question. In the first place, it is leading, and in the second place, the witness already stated he was unable to form any opinion because the animals came there dead.

Mr. Miller: I submit he has not stated that he was not able to state how long or to form an opinion as to how long——

The Court: Well, it would be best—the only effect of it would be the weight of it.

Gen. Cox: Your Honor will remember he said he could not tell how long they were dead, and he did not state whether he could tell whether the death occurred or the changes occurred by something taken before death or by something after death causing the destruction of the tissues by mortification.

The Court: The only question is as to whether or not it is leading.

Mr. Miller: How is that?

The Court: I think the question is perhaps objectionable in that in his last alternative as suggesting what would have been the cause of things that were received before death—you may ask him the question whether his opinion is the appearance indicated that the degeneration was a post mortem degeneration or one during life.

BY MR. MILLER:

Q. All right, Your Honor. From your experience, refreshing yourself from your notes, how long——

A. (Interrupting.) You mean how long had these

five animals been dead?

Q. Well, yes; that you examined microscopically.

A. They were received dead and how long they were dead I am unable to state. They were not cholorformed by me.

Q. I am not asking you as to that, how long, but did you discover anything in the post morterm that you held which would give you a definite idea as to approximately how long they had been dead?

Mr. Sizer: The witness having answered twice he could not tell how long the rabbits had been dead, it is not competent to cross-examine him in that way.

The Court: He said he could not answer definitely, and now he is being asked if he could tell approximately.

The Witness: I could tell approximately the animals were not dead a long time because the tissue changes would be very pronounced.

BY MR. MILLER:

Q. Did you find any pronounced changes which would have occurred as a result of long death or post mortem changes so to speak?

A. No, sir; I did not.

Q. Then, state whether or not these granular—any any granular changes, or the absence of this graular matter you spoke of, in your opinion, was or not due to the post mortem changes or whether due to other causes?

A. It was not due to post mortem change, but was brought about by some other causes.

Q. And in those five rabbits that you did microscopically examine, state whether or not there was similarity of appearance, both to the naked eye of the intestines, and intestinal structure.

A. There was similarity as far as fullness of blood vessels and congestion was concerned.

Q. Now, was there or not a similarity in the microscopic examination?

A. Yes, sir; there was not likewise a similarity in the microscopic examination.

Q. Are you prepared to state what the general custom of authors is in making reports of cases for medical publications, as to whether or not they report the usual or exceptional conditions.

A. I don't know whether I quite understand your question.

Mr. Sizer: I object to that—that is not a question of expert testimony—you might as well ask a lawyer whether

usually or customarily the text writer reports a case correctly.

Mr. Miller: I am not asking for the correctness of it, but asking as to the custom——

The Court: You asked him for medical and scientific works in his domain.

Mr. Miller: I will limit it in that particular.

The Court: You expect to make that competent?

Mr. Miller: I expect to make it applicable to certain things that have been brought out.

The Court: I will allow it as to his line, you may ask the question.

The Witness: Usually a brief memorandum of the salient or prominent changes are made in the post mortem room, however, when a complete accurate post mortem examination is not called for, and by those we mean that we examine those changes which are apparent and which would leave any doubt when examined microscopically.

BY MR. MILLER:

Q. And that applies to the science in which you are a professor and teacher and of which you are a student?

A. If a post mortem is made before students, where you wish to report every change and every possible deviation from the normal, you have to go over it in detail—and give a brief description of the changes as far as you may in the post mortem room.

Q. Well, applying it to these particular cases where you made post mortem examinations, is your rule or custom or that of other practitioners to note a normal or the abnormal conditions or to make mention of the normal or abnormal conditions?

A. Well, usually, the abnormal conditions are noted, and the normal conditions are usually left out—there is no reason why one should refer to them.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. In your last statement which you made as to the heart being cut, being difficult to cut—the heart fiber—

A. (Interrupting.) If the heart cuts difficult, it might probably be due to puerpereal or irritation taken place, the knife may strike a granular substance——

Q. (Interrupting.) You say all the animals you examined microscopically came over to you dead?

A. Yes, sir.

Q. In what fluid did you put the brain?

A. The nerve tissues were put in ten per cent solution of formaldehyde.

Q. Is it not a scientific fact that unless the nerves of the brain are immediately put into a solution of formaldehyde, that chromotolysi will commence immediately afterwards?

A. It would be going too far to say that it begins immediately, because it is hardly possible that immediately after death that particular process would take place.

Q. Is it possible that it would take place immediately after death?

A. I would not venture to express an opinion on the length of time when that process would take place.

Q. Doctor, not having examined any of these animals bacteriologically, you cannot in a single case exclude the possibility of some spontaneous bacteriological infection?

A. If the animal was brought from an unknown source where no supervision or examination of record was kept as to the feeding, as to the condition in which the animal was kept, it would be difficult to express an opinion, but when an animal is kept in a Government laboratory where the officer is, so to speak, employed by the Government and have to do as told by his chief, there is no likelihood that there could be any possible meddling with the animal.

Mr. Hirsch: I move to strike out the answer because it is not responsive to the question. I asked him simply the question if he had examined any of these animals bacteriologically and if he had not, could he in a single case exclude the possibility of spontaneous bacterial infection, and then he goes on to tell me how the Government does it.

The Court: The answer is excluded.

BY MR. HIRSCH:

Q. Just answer my question, Doctor.

A. Well, there would be no possible way unless the animal had some external wounds, or has received food which might lead to bacterial infection.

Q. You did express an opinion as to how long these animals had died before they were brought over to your bureau.

A. I simply stated that the tissues were not in a state of decomposition but were sufficiently fresh to warrant me in stating that the animal was dead a limited number of hours, how many hours I could not tell.

Q. Now, Doctor, as to that, would not your answer

be modified according to the condition or change of temperature?

A. It would; if the animal was kept in the store room, if the animal would be exposed in a careless manner, but not if the animal was placed in an ice chest immediately after death, which is the custom in keeping animals in the bureau.

Q. You say the placing of an animal in an ice chest would not make any difference in it?

A. No, sir; only in so far that it would prevent decomposition.

Q. Then, if it did prevent decomposition, that would make a difference as far as you could tell in your opinion as to how long these animals died before they were brought to you?

A. I could not answer.

Q. Doctor, can you tell whether or not chromotolysi is or is not present by the naked eye?

A. Nobody could tell that.

Q. Doctor, suppose these rabbits were fed a food, in an abnormal quantity or an abnormal amount, or rather abnormally given this food, it was given by way of the mouth with a tube placed down the throat in these animals, could not that have caused chromotolysi?

A. I don't see what possible connection there could be between the tube and chromotolysi.

Q. You say it could not possibly have caused it?

A. No, sir.

REDIRECT EXAMINATION.

BY MR. MILLER:

Q. Did you find any wound on these rabbits, any evidence of external infection that could have caused this chromotolysi that he speaks of?

A. No, sir.

Q. State whether or not you have examined the brains of rabbits frequently which have received the normal food, that is, normal food such as oats, carrots and cabbage and things of that kind.

A. I have to examine animals almost every day in a week in my experimental work and during the two years I had charge of the rabies examinations—mad dogs—madness in dogs, I have conducted several hundred experiments where my work threw me in close contact with the nervous system and examination of these tissues.

Q. Where was that you were connected with that hydrophobia or rabies examination?

A. In the District of Columbia a number of animals are sent—well, it becomes necessary to see whether the

animal has rabies or not—a dog having previously bitten some person, before the person receives or submits to the treatment for it, the Bureau usually examines into whether the animal had rabies or not.

Q. And you were entrusted with that work, you say, for two years?

A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. You did not completely answer my last question that I put to you.

A. I thought I answered it.

Q. I asked you if abnormal food, of an abnormal quantity or kind of food, should be given a rabbit by way of the mouth through a tube, chromotolysi in that case might be due to the tube, and you said no, not to the tube.

A. I understood your question whether it would be due to the tube.

Q. It would not be due to the kind or quantity of food taken?

A. If the food be an irritating substance, phosphorus or arsenic, or other substances were given, it might induce lesion and changes.

Q. Doctor, you say that all of the rabbits, I believe, had tags in their ears?

A. Yes, sir.

Q. With numbers on them?

A. Yes, sir.

Q. In what way were they put on there?

A. There was a small stiff cardboard and it had something like a thin wire staple which was pressed through the ear and the two ends bent on each side.

Q. Now, suppose that had been on the rabbit's ear covering a period of from one to six or eight months, could that not have caused an infection?

A. That would depend upon the size of the wound and the precaution with which the tag was applied. In the first place in applying these tags the material is disinfested, the ear of the animal is disinfected.

Mr. Hirsch: I object to that. I want to know if they could not cause infection.

A. Could not.

BY MR. HIRSCH:

Q. Could not?

A. No, sir.

Q. Why not?

A. Because every sanitary precaution has been taken

to disinfect the part whereby no infection would take place.

Q. How do you know that, Doctor?

A. Well, there is no exposure—everything is sealed up, being a perfect wound and hygienically made—it heals up in a very little while.

Q. How do you know it was cleaned?

A. Well, usually there is—

Q. (Interrupting) I say, how do you know these particular animals were cleaned that way?

A. Because they are not applied in any other way in the Government work.

Q. Did you see them put in?

A. I did not.

Q. Did you see them cleaned?

A. No, sir.

Mr. Hirsch: Then I move, Your Honor, to strike that portion of his answer from the record.

The Court: The motion is sustained and that portion which relates to the manner in which the tags were put on the ears is excluded.

BY MR. MILLER:

Q. Did you find any local manifestations of poisoning, Doctor, in the ear.

A. I did not.

Q. From the applying of these tags?

A. No, sir.

Q. If there had been any infection due to that, would you have found some manifestations?

A. There would have been some—they were properly healed up where the tag was applied.

RE-CROSS EXAMINATION
BY MR. HIRSCH:

Q. Is it possible and likely that it might heal and still be an infection?

A. Well, the wound was so small that it would be impossible to imagine the possibility of an infection.

Q. How big a wound is necessary to produce infection?

A. Well, in the first place, the ear is not a very favorable place through which infection would take place. The size of the wound which is necessary to produce infection, of course, I could not state in exact dimensions, but if we make an incision and lay open the sides where there is—a micro-organism,—the incision in these micro-organisms is more probable than if you would make a puncture into it in which you insert a small metallic part, which is a point, and you bend that over so as to shield the external

part of the ear from any visible invasion.

Q. Well, it might be probable or improbable, but does that necessarily exclude any infection that could come from the wound that even healed before you saw the rabbit dead, the placing of that little piece of pasteboard on the animals' ear?

A. No, I could not concede the possibility of it.

BY MR. MILLER:

Q. Have you ever known of one being infected in that way?

A. How was that?

Q. Have you ever observed, in the many rabbits you have experimented on, any infected in that way?

A. No, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. Have you made bacteriological examinations in a single case?

A. No, sir; not in these cases.

(Witness excused.)

B. A. GALLAGHER,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Gallagher, what is your age and your profession?

A. My age is thirty-one and I am a veterinarian in the Bureau of Animal Industry.

Q. Of what institutions, if any, are you a graduate?

A. Cornell University.

Q. When did you graduate there and what course did you take?

A. I took the veterinary course and graduated in 1901.

Q. What experience have you had since in your profession.

A. I have been connected with the Bureau of Animal Industry since graduation with the exception of six months when I served as assistant chief in the department of Animal Industry in the Cuban Republic.

Q. Well now, as a member of the Bureau of Animal Industry or connected therewith, what has been your duty, what character of work have you done?

A. For about five years my work consisted of making post mortem examinations in the packing houses of the West.

Q. Packing houses of the West?
A. Yes, sir.
Q. In what cities?
A. Kansas City and St. Joseph, Missouri.
Q. What kind of packing was taking place—packing of what animals?
A. Cattle, sheep, hogs and goats.
Q. You were a Government representative there?
A. Yes, sir.
Q. Charged with the matter of sanitary inspection?
A. Yes, sir.
Q. Have you ever done any pathological or bacteriological work, and if so, what?
A. I have done pathological and bacteriological work in the pathological laboratory at Washington.
Q. To what extent?
A. To the extent of making pathological and bacteriological examinations of specimens sent in from various parts of the country.
Q. Did you make post mortem examinations of any of the rabbits that are shown on the exhibit to Doctor Morgan's deposition or his testimony in this case? And if so, you can identify the rabbits by the tag number that appeared on the ear of the rabbit when it reached the Bureau of Animal Industry with which you were connected—in the number of the rabbits which you thus posted.
A. I posted sir. They were numbered 26, 27, 28, 29, 33 and 17.
Q. Now state what was your course—the course that was pursued—in making these post mortem examinations generally, and also how long it was after the animals were received before the postmortems were made.
A. The method of procedure was——
Q. Refer to your notes, if you like.
A. The rabbits were brought over as a rule and the post mortem examination was conducted either immedeiately on arrival or within the course of an hour.
Q. Now then, what did you do in making that post mortem?
A. The animal was opened and the viscereal organs exposed.
Q. Just tell the jury about it; talk a little louder.
A. And any abnormal lesions were noticed, any appearance different from the normal appearance of these organs.
Q. You noted only the abnormal changes you found?
A. Yes, sir.

Q. Now, if there were any abnormal conditions noted in those six rabbits which you opened and examined, tell the jury in a general way what those conditions were.

A. Well, in a general way there was congestion of the intestines.

Q. What do you mean by congestion?

A. An increased supply of blood above the normal, in the blood vessels of the organs. In some cases there was congestion of the stomach and in some cases congestion of both stomach and intestines; also the liver and the kidney were as a rule involved.

Q. Were as a rule what?

A. Involved.

Q. What do you mean by involved? Any difference from the normal? If so, in what respect?

A. They showed abnormal changes especially in that they were congested—they showed congested spots.

Q. Did you know at the time that those animals were sent over what they had been fed on—how much they had been fed?

A. No, sir; I knew nothing about them. I am receiving a great number of rabbits and guinea pigs from different sources and post them as they come and return post mortem notes on them to the Department of Chemistry.

Q. You have the original notes which you made yourself on each and all of those rabbits?

A. Yes, sir.

Q. Did you or not know for what purpose these specimens were sent to you? That is, what the Bureau of Chemistry was trying to determine?

A. No, sir; I knew that there were some experiments that they were carrying out but I did not know the nature of them.

Mr. Miller: That is all.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. Doctor, were those rabbits dead of alive when you got them?

A. Five of these rabbits were dead and one was alive.

Q. Five were dead and one was alive?

A. Yes, sir.

Q. What did you do with the live one?

A. Chloroformed him.

Q. Chloroformed him?

A. Yes, sir.

Q. What was the number of that rabbit?

A. Number 29.

Q. You do not know, of course, how long the other five rabbits had been dead?

A. No, sir; I do not.

Q. Did you make a microscopical examination of each of those rabbits?

A. No, sir. I did not make a microscopical examination of each one of those rabbits.

Q. Only what you call a macroscopical examination?

A. Yes, sir.

Q. You say you found certain organs congested in some of the rabbits?

A. Yes, sir.

Q. In all of them?

A. Well, there were certain organs congested in each one of them but in some cases one organ might not be congested.

Q. In one rabbit you might find slight congestion in one organ, and not in the other; is that true?

A. I think in most cases there was more than one organ involved.

Q. But in some cases there was only one organ involved?

A. I don't hardly think there was a case where there was only one organ involved.

Q. Was there a case where there were more than two organs involved?

A. Yes, sir.

Q. How many?

A. Five of them showed more than two organs involved and one showed two organs.

Q. Did you make any examination of the other organs, the brain and spinal cord?

A. No, sir; I did not examine the brain and spinal cord.

Q. Did you find any other trouble in any of those rabbits except the mere fact of congestion in certain of these organs?

A. I could not recall now. I expect if there were any other changes it would be noted here.

Q. And you have not noted any other change?

A. No, sir.

Q. And from that you assume that there were no other changes?

A. At this time I do; I could not recall.

Mr. Sizer: That is all.

Mr. Miller: Was there anything in these rabbits to indicate that they had ben dead sufficiently long for these

abnormal conditions or changes you found to have resulted after death?

The Witness: No, sir; there was no such indication.

Mr. Miller: That is all.

BY MR. SIZER:

Q. The fact is, you could not tell how long they had been dead?

A. I could tell that they had not been dead a great time.

Q. They had not been dead long enough to putrefy?

A. No, sir.

Q. They might have been kept in an ice chest for a long time without showing any evidence of decay or putrefaction?

A. They might have been.

BY MR. MILLER:

Q. This one that was not dead had not been kept in any ice chest?

A. No, sir; that was examined immediately after it was killed.

Q. Was the internal condition of the rabbit in a general way substantially the same.

BY MR. SIZER:

Q. That one rabbit was killed by chloroform?

A. Yes, sir.

Q. How long after the chloroform did it take him to die—how long did the process of dying go on after you administered the chloroform?

A. As a rule, possibly a minute or two minutes.

Q. Then how soon after he died did you conduct the post mortem?

Within practically a quarter of an hour.

Mr. Miller: All right.

DR. WORTH HALE,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor Hale, what is your profession?

A. Pharmacologist.

Q. What is a pharmacologist?

A. One who studies the action of drugs to observe their effects on the body, especially of the lower animals.

Q. Why not on man?

A. We are not justified in making experiments on man although in certain instances it is done to a limited extent.

Q. Of what institution, or institutions are you a graduate?

A. I am a graduate of the University of Michigan.

Q. What course did you take there?

A. I took the course leading to the degree of Bachelor of Arts and of Medicine.

Q. Took them both the same year?

A. No, sir.

Q. In what year did you take the degree of Bachelor of Arts?

A. My degree of Bachelor of Arts was taken subsequently to my degree in medicine.

Q. Just give the year.

A. 1908, Bachelor of Arts; 1904, the degree in medicine.

You took the degree of Doctor of Medicine in 1904?

A. Yes, sir.

Q. What active service or experience have you had since your graduation in either or both branches?

A. After graduating in medicine I had a year of hospital work in the West, in Montana; and subsequent to that I was asked to go to the University of Michigan to take an assistantship in Pharmacology.

Q. How long were you connected with the University of Michigan as an assistant in Pharmacology?

A. Three years.

Q. During that time what was the course of your duties—what were your general duties?

A. I had some lecture work and then I had the laboratory work for the medical students in pharmacology.

Q. What do you mean by laboratory work?

A. To teach the students the action of drugs, it is necessary or very much better, at least, for them to see with their eyes what drugs will do. For this purpose we use the lower animals of varius sorts—dogs, cats, rabbits and frogs. To these animals drugs are given and the effect is noted. Under my supervision the students were allowed to do these various things:

Q. Who were the professors in pharmacology of the University of Michigan while you were a student there?

A. Professor Cushny.

Q. Where does Professor Cushny reside now?

A. University College, London.

Q. Is that the Professor Cushny who has written a

work on pharmacology?

A. Yes, sir; it is.

Q. With what society or societies for medical research or pharmacological research are you connected?

A. I am a member of the American Medical Association, the American Pharmacentical Association, the American Physiological Society and the International Congress of Applied Chemistry.

Q. You have been connected with the public health service?

A. During the last three years or about three years now.

Q. What position do you hold now?

A. I am assistant in pharmocology in the United States Public Health and Marine Hospital Service.

Q. Are you in any way connected with the Bureau of Chemistry or of Animal Industry at Washington?

A. I am not.

Q. I will ask you whether or not you were especially permitted or detailed to come here by the surgeon general?

A. The Surgeon General issued orders that I should proceed to Chattanooga on special duty in connection with this case.

Q. Did you ever have any personal experience with the substance called caffeine?

A. I did not catch the first part of your question.

Q. I asked you if you ever had any personal experience with caffeine, whether you ever took any of it yourself.

A. Yes, sir.

Q. The pure substance or the citrate, either?

A. Yes, sir.

Q. Under what circumstances did you take it and how much?

A. It was the year after I graduated, I was taking the state board examination, and after the second,—after two and a half days of the examination, it was the last half day of the test that I was taking and I was tired, and I thought I would stimulate myself to enable me to do the remaining subjects in the best way. So I took a dose of caffeine in tablet form, I do not remember the exact dose. My memory is it was two grains.

Q. What effect did it produce?

A. Well, I could not recall the immediate effect. I took it on my way to the place where the examination was held and when I started to write on the subject, it was as if I could not put anything down on paper that I thought of because it seemed that either my mind was

confused—I seemed to know the things I wanted to say but I could not get them down on paper. Before I could get the thing I thought of on paper, some other thought would be in my mind and it was a confusion of thoughts. And for about an hour, although the exact time I cannot recall, I was practically useless to myself and could not work upon the subject.

Q. Did it or not interefere with that process known as co-ordination?

A. Yes, sir; I think it might be called that.

Q. Now, have you made any experiments on the lower forms of animal life with caffeine?

A. Yes, sir; not only in my teaching work but subsequently.

Q. Have you made any recent experiments with caffeine, and if so, with what kind of animals and what form of animal life?

A. I have carried out experiments on mice and guinea pigs incidental to another research and quite recently also on frogs and on a dog.

Q. In your experimentation on frogs, was there any way by which you could determine the effect of the administration of caffeine as applied to or as it came in contact with the muscles of the frogs?

A. Yes, sir; I used the graphic method of recording the effect on the muscle.

Q. Is that or not a standard method?

A. It is.

Q. Is it possible in that connection or is it a part of that process to make a tracing that will show the effect of the caffeine as it comes in contact with the muscle of the frog?

A. The muscle is attached to a lever and every time the muscle contracts it pulls the lever up and makes a mark on a piece of smoked paper so that it is recorded.

Q. Did you or not in connection with this experimental work of yours make a tracing which would show the effects of caffeine as it was applied at the time to the muscle of the frog?

A. I did.

Q. What solution of caffeine did you use in making this experiment?

A. I used a solution of citrate of caffeine.

Q. What was the percentage or proportion of caffeine?

A. The caffeine was one part in 50,000.

Q. One part in 50,000?

A. Yes, sir.

Q. Now, have you a tracing with you that will show

the effect of the application or administration of that solution of one part of caffeine to 50,000?

A Yes, sir.

Q. I will ask you to produce that and file it as part of your testimony, as Exhibit No. 1, and show it to the jury and explain it.

Mr. Sizer: What do you say it is?

Mr. Miller: It is noting the effect of caffeine when it comes in contact with the muscles of these lower animals showing where there was caffeine and where there was not caffeine.

Mr. Sizer: We want to interpose an objection to all experiments made on caffeine applied directly to muscles. The evidence heretofore introduced shows that caffeine is never applied that way in human beings and therefore the effect of caffeine administered or applied directly to muscles in these animals can have no bearing on this case because the effect of caffeine taken into the stomach of a human being may be an entirely different thing from caffeine applied to a muscle of a frog or a mouse or dog.

Mr. Miller: Our response is that it has been shown that caffeine does come in contact with the muscle whether administered subcutaneously or administered through the mouth, and we will also show that by this witness.

Mr. Sizer: Who has testified to that?

Mr. Miller: I will ask Doctor Hale himself.

Mr. Sizer: But you said it had already been shown.

Mr. Miller: We have shown it by a number of witnesses that we have had on the stand. I can't pretend to point out everything that has happened in the last four or five days of testimony.

The Court: I do not know of any testimony to that effect.

BY MR. MILLER:

Q. I will ask you whether or not it is a fact that caffeine taken internally comes in contact with the muscle, and if so, how.

A. If given subcutaneously or by the mouth, or intravenously, it comes in contact by being carried through the blood stream and in that way it is applied directly to the muscle. I never have experimented any in giving frogs caffeine by the mouth; I have given it by injection into the lymph sacs by which it is carried in the blood to the muscles and generally throughout the whole body.

Q. If it is injected through the lymph sacs does it enter the circulation?

A. Yes, sir.

Q. If it is given in the mouth does it enter in the circulation?

A. It does.

Q. State whether or not the process of carrying it to the muscle and in contact with the muscle is the same in both instances.

A. It is.

Mr. Miller: Now, I submit, your Honor——

The Court: You may proceed.

BY MR. MILLER:

Q. Now, take your time and explain to the jury what these two lines represent on this tracing which I will ask you to file as Exhibit No. 1.

A. The muscle is attached to a lever. The muscle is kept in a chamber which keeps a constant temperature. This muscle is in one chamber and this muscle which records this other tracing is in another. Each muscle is connected with the electrical aparatus for stimulating the muscle, and every five seconds, or approximately five seconds the stimulus is given. The same electrical current which goes through the muscle recording here goes through the muscle recording here (indicating). So that the stimulus for each muscle is exactly the same. To the muscle tracing which is shown on this top place caffeine was given in solution one part in 50,000. To this bottom muscle nothing was added. You will notice as the stimulations go on, at first they approximately the same height but later they become weaker and weaker, in both cases, but with the top or caffeine muscle they become very much weaker and finally there is a failure of response. The failure of response in this instance appears about thirty-five or forty minutes after the experiment was begun. The muscle without caffeine was still contracting although not so well as at first, showing the effect of fatigue. This top tracing shows the poisoned muscle under caffeine.

Q. I will ask you to file that as Exhibit No. 1 with your testimony, but you can retain it for the present. What was that solution?

A. Ordinary table salt and other salts such as are found in the body. Tissues will live in this for hours.

Q. State whether or not the solutions applied to these muscles were the same in each instance as to the caffeine content.

A. They were.

Q. In what length of time did fatigue in one case precede that in the other? That is, complete fatigue or exhaustion?

A. It would be rather difficult to say from this tracing. I see in this tracing a thing which I did not point out which would lead me to believe it was the caffeine muscle which was becoming fatigued first. In physiology we have what is known as contracture and when fatigue comes on, the muscles begin to go into contracture, and it does not relax as much as normal, and that is apparent on this tracing.

Q. Speaking from your experience as well as the tracing, sate whether or not that exhaustion did appear and that fatigue did appear in the caffeine treated muscle earlier or later than in the other one.

A. My experience in quantitatively determining certain things is very limited and I would not be able to say. In this instance it did.

Q. In which muscle?

A. In the caffeine muscle.

Q. Now, did you make any animal experimentation and in that connection the tracing, using a dog as the substance?

Q. If so, have you such a tracing that was prepared in the same manner as the one where the frog muscle was used?

A. I have.

Q. Will you please produce that?

A. I have it here.

Q. Will you file it as Exhibit No. 2?

A. I will (indicating).

Q. Now, please tell us what that tracing represents and explains it also to the jury.

A. This tracing is made to record the action of the heart. The heart in a dog, after the dog is put to sleep with a suitable drug, in this case with morphine, and cheorotone, the chest cavity is opened so that the heart is exposed. In order to do this, one must give the animal respiration artificially, and a bellows is used for that so that the animal is able to breathe and after that the chest cavity is opened and the heart is exposed so that you can see it. The heart is surrounded by a little envelope and that is split open and then a needle is threaded through the heart, the external muscular layer, and the thread attached to the needle is tied to a lever or mechanism of which I do not think it is necessary to explain. As the heart contracts the lever is pulled down and leaves on this smoked paper a tracing. When the heart opens to fill with blood, the lever comes up so that at this point ——

Q. (Interruption). Is that indicated there?

A. Yes, sir; it is indicated on the tracing.

Q. As what?

A. Caffeine ninety milligrams—caffeine, citrate,—thank you.

Q. Then what?

A. At the end of ten or fifteen or perhaps twenty seconds, the contractions of the heart are shown to have become very much more pronounced; that is, the heart does not always contract completely shut, there is always a hole inside where there is blood, but under the drug it shuts down more completely just as if you would shut your fist more tightly, and that is shown by the lines reaching down towards the base line.

Mr. Hirsch: We object to that question until after Mr. Miller asks whether the citrate has any effect. He does not also say whether the opening of the dog's heart would have anything to do with it, and he does not say how it was given.

The Court: That may be brought out on cross-examination.

A. (Continuing) Subsequently, I should say at the end of a minute or a minute and a half, the heart becomes irregular and still contracting with stronger beats more forcible than under the condition we call normal or before the drug was injected. It is apparently stronger but irregular, so that some of them are apparently weak.

BY MR. MILLER:

Q. In this connection state whether or not you first observed the heart beat without the condition of caffeine or the administration of it, and if you say you did and it is recorded, explain in that connection at what point the caffeine was administered or received.

A. The normal is always observed during experimental work. We have to observe that to see whether the drugs have any effect. I could not say how long the normal was taken before the drug was injected, but I should imagine for some ten minutes, not from anything on the tracing, but as a general custom.

Q. Does the tracing show the difference between the heart beat before and after the drug was administered?

A. It does.

Q. At what part was the administration applied?

A. There is a signal mark—a white line which shows where the drug was injected and under that is written: "Caffeine citrate, 90 milligrams."

The Court: I think I am in error on that last ruling. I think before that goes to the jury you should show that the citrate of caffeine is not different.

Mr. Miller: I hardly thought that would be controverted. Do you make any question on that?

Mr. Sizer: Certainly.

BY MR. MILLER:

Q. What is the portion of caffeine in citrate?

A. About firty per cent.

Q. Of what does the remainder consist?

A. Citric acid, I think, but I am not very sure. That is a pharmaceutical matter.

Q. Is there anything in this citrate of caffeine that would have produced the effect that you have recorded on these tracings so far as you know or have learned by either your investigation, research or reading?

Mr. Sizer: I object, the witness has not stated that he knows what citrate of caffeine is.

The Court: Ascertain whether he is prepared to state.

The Witness: I have observed the formula, Mr. Sizer. I should say the formula observed—though I cannot state the exact ingredients—that it contains nothing but citric acid and caffeine which would have the effect—or might have the effect.

BY MR. MILLER:

Q. You are a pharmacologist, and speaking from the standpoint of a pharmacologist, would the effects which you have described result from the administration of this acid, citric acid, that you speak of.

A. It would not.

Mr. Miller: Now, I submit that he is qualified to speak as to the tracing.

The Court: You may proceed.

BY MR. MILLER:

Now, Doctor state whether or not you have ever made any experiment with caffeine on mice.

A. I have.

Q. Or any other form of animal life?

A. Also on guinea pigs.

Q. State whether or not you determined the lethal or deadly or fatal dose, as respects both.

A. I determined the least amount of the drug to kill.

Q. In the instances where you have experimented?

A. Yes, sir.

Q. What did you find that to be — what did you find the lethal dose in mature mice and also in mature guinea pigs under normal conditions?

A. That is a rather hard question of calculation. For mice it is 7-10ths of a milligram per gram weight.

Q. How much is it per pound?

A. Pound of mice?

Q. Yes.

A. I would not swear that these are absolutely correct, but I should say it was in the neighborhood of five grains.

BY MR. SIZER:

Q. Do you mean five grains to the pound?

A. I am not very good at figures.

Q. I did not catch the quantity.

A. That is what I answered, but I am not sure it is exactly correct.

BY MR. MILLER:

Q. Just verify that.

A. For mice, 7-10ths of a milligram per gram weight, and that is the way I figure it out.

Q. What is it in the case of a guinea pig?

A. Five-tenths of a milligram per gram weight.

Q. Were those experiments on frogs made for the purpose of testifying in this case, or wholly independent of this?

A. The frogs as recorded here, although I have done many others previously, were for the purpose of testifying in this case.

Q. For determining the exact effect of caffeine?

A. Yes, sir.

Q. State whether or not that was in accordance with your previous experiments.

A. It was.

Q. Now, taking the lethal dose for mice and for guinea pigs, I will ask you if you are prepared to give an opinion from your experimental work and your investigation and your observation and your research, as to the lethal dose for an individual and what is the comparative ratio as between mice and men, and guinea pigs and men.

A. Mice would be eighty times more resistant than man, and guinea pigs thirty-five.

Q. Taking as a standard for man — what amount for man?

A. The Allard case.

Q. How many grains?

A. Nine grains.

Q. Assuming the Zenetz case, 22 grains, extending over ten hours?

A. The ratio would be— mice, 35 times more resistant; guinea pigs, 15 times more resistant.

Q. State whether or not it is true that the lower forms of animal life are more resistant or resist more readily the

ravages or effects of caffeine than human life.

A. The rule with one exception is almost invariably so. The exception is the frog muscle, which is more sensitive.

Q. Are you prepared to state whether the use of caffeine in solution according to the formula that has been testified to by Doctor Fuller in this case would contribute to Bright's disease, and if so, why?

A. Under caffeine administration I am. Under caffeine administration albumen has been found in the urine casts or cylinders. This would be an indication of acute Bright's disease or inflammation of the kidney. On that ground I think that it might.

Q. What tissues are immediately affected and what ultimately affected by the administration of caffeine through the stomach?

Mr. Sizer: I noticed you were reading from some book, that the witness there was reading from some book, and I object to it.

The Witness: I was only reading from my notes,—the relative doses.

Mr. Sizer: I thought you were reading from some written statement.

The Witness: No.

Mr. Miller: I will ask you, Mr. Hacker, to read him my question.

(Thereupon the stenographer read the pending question, as follows: "What tissues are immediately affected and what ultimately affected by the administration of caffeine through the stomach"?)

A. I don't think I am prepared to state what effect caffeine would have on the stomach, but after absorption into the blood it would have the effect on three tissues after that.

BY MR. MILLER:

Q. Which?

A. The central nervous system, the heart and the kidneys.

Q. How does it reach those?

A. Through the blood, probably also has some action on the muscles.

Q. Are you the author or writer of a treatise?

A. I am.

Q. (Interrupting) Which I hold here, entitled: "The Influence of Certain Drugs Upon the Toxicity of Acetanilid and Antipyrine"?

A. I am.

Q. State whether or not you have made any experiments to determine whether the addition of caffeine in

cases where acetanilid or antipyrine or other drugs of that character are administered would have any appreciable effect.

Mr. Sizer: I object to that.

Mr. Miller: Well, if he objects to it I will withdraw the question.

BY MR. MILLER:

Q. Are you prepared to express an opinion as to what would be the effect of the administration of caffeine in doses from one to two grains to persons who are afflicted with heart disease?

A. Yes, sir; especially a certain form of heart disease.

Mr. Sizer: (Interrupting) I object to this. This witness has not qualified as a physician at all.

The Court: I do not think he is qualified, Mr. Miller.

Mr. Miller: He said he took a degree of Doctor of Medicine.

BY MR. MILLER:

Q. I will just ask you what experience you have and whether you think you are prepared to give an opinion. Give your experience.

A. My experience in that regard otherwise than that derived by reading is confined to my student days in which I saw pathological lesions of the heart.

Q. Has your reading along that line and your investigation been extensive or otherwise?

A. No, I think not extensive, but I think sufficiently to know what the effect of certain drugs would be under certain conditions.

Q. You say you were at Ann Arbor four years; what was the extent of your observation that you made there?

A. I saw post mortem examinations during two years, I could not tell you how many cases.

Q. Many or few?

A. Quite a good many.

Mr. Miller: I submit he is qualified.

The Court: I don't think this witness is qualified as an expert along this particular line, this last line.

Mr. Miller: We reserve an exception to that, your Honor.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You say your age is what, Doctor?

A. Thirty-four.

Q. And you graduated in medicine in 1904?

A. Yes, sir.

Q. And then took a course and graduated as B. A. in 1908?

A. Yes, sir.
Q. And you have written a book?
A. Not that I know of.
Q. Didn't you state you had written a book?
A. No, sir.
Mr. Miller: A treatise.

BY MR. SIZER:

Q. Just an article or treatise?
A. Yes, sir.
Q. And have experimented on guinea pigs and mice, and frogs, and have now reached the conclusion that the effect of caffeine taken through the mouth is the same as when administered directly to the muscle?
A. Yes, sir.
Q. Then that is your opinion?
A. Yes, sir.
Q. On what do you base that, Doctor?
A. From the fact that drugs taken by the stomach or given to the stomach, in part of these experiments, they were the same.
Q. How do you know that?
A. Perhaps I should say, have the same qualitative effect — I have seen it.
Q. Is it a fact that a great many substances are absolutely harmless, when taken into the stomach, and absolutely poisonous if taken into the circulation.
A. Not such a great many, just a few.
Q. Well, rattlesnake poison, for instance; take that one.
A. I would not want to have an ulcer in my stomach — to take rattlesnake poison into my stomach.
Q. Isn't it a fact that rattlesnake poison taken into the stomach is harmless and that it is absolutely poisonous when injected?
A. Yes, sir.
Q. Is it a fact that diphtheria germs are absolutely harmless when taken into the stomach?
A. I would not want to say.
Q. Don't you know?
A. I am not a bacteriologist.
Q. Your experience as a bacteriologist does not enable you to testify on that point?
A. No, sir; I am not qualified to speak as a bacteriologist.
Q. And yet you undertake to state that the effect of caffeine taken into the stomach is the same as when administered hypodermically into the vein?
A. Yes, sir; that is my opinion ——

Q. (Interrupting) How about the white of egg, is that harmless when taken into the stomach?

A. Yes, sir.

Q. You say it is harmless when taken into the stomach?

A. Yes, sir; under ordinary conditions.

Q. Is it poisonous when taken into the veins?

A. Under certain conditions, yes.

Q. Isn't ordinary milk frequently poisonous when taken into the veins?

A. Yes, under certain conditions.

Q. If you injected it into the veins is it a poison?

A. If you will prescribe the dose — state the dose, it might be under certain conditions.

Q. Well, under what conditions?

A. I am not able to state that.

Q. Will you state under what condition milk could be safely injected into the veins?

A. I should say an injection, one injection, would not be serious.

Q. Suppose you took two injections?

A. It might be.

Q. Would it or not?

A. I am not prepared to say.

Q. Is milk when taken into the stomach not only harmless but an article of food?

A. Under certain conditions.

Q. How do you know that the same conditions do not apply to caffeine?

A. I have given caffeine by the mouth and by injections, and the effects are the same.

Q. Did you ever take caffeine by injection?

A. Myself — no, sir.

Q. You have taken one dose of two grains?

A. Yes, sir.

Q. And that is the full extent that you have had to do with it?

A. Yes, sir; with caffeine.

Q. Now, Doctor, don't you know this, that as a matter of fact, when you take caffeine in the system it does not get to the muscles at all as caffeine?

A. No, I think I do.

Q. Do you know whether it does or not?

A. I think I know it does.

Q. Is it a fact that dimethylated into theobromine and para-xanthine?

A. No, sir ——

Q. (Interrupting) How do you know?

A. By authorities.

Q. Now, what authority do you base the statement on that caffeine when taken into the stomach gets to the muscle as caffeine?

A. I base that statement upon my reasoning from the fact that it is circulated in the blood.

Q. I thought you said you got it from authority. What was the authority?

A. Well, if you will state ——

Q. (Interrupting) The authority that states when caffeine gets into the stomach it gets to the muscle as caffeine.

A. I would not want to say it in that way ——

Q. Don't the authorities all say that when caffeine is taken into the system it is broken up and demethylated and transformed into lower xanthine products, and after that into simple xanthines?

A. In part.

Q. Now then, suppose you took a dose of caffeine into the stomach, what proportion of that caffeine would be dimethylated before it got to the muscle?

A. I don't know.

Q. Is it a fact it would practically all be?

A. I think not.

Q. Do you know, Doctor? Do you know?

A. Yes, I think I do.

Q. Well, if you know why can't you tell us how much gets there?

A. Well, the precise amount, the breaking down in so far as we know, and we know and the evidence is that part is not broken down, indicates it is with difficulty broken down,—which would lead me to the conclusion it circulates in the blood for a long time.

Q. On what do you base the statement ——

A. Part of it is not broken down when excreted.

Q. You base that statement on an authority?

A. Yes, sir.

Q. What was the authority you refer to, who made such statements as that?

A. I would not want to say for sure, but I think Cushny does — I know I have read it.

Q. You know you have read it somewhere, but you do not know where?

A. Yes, sir.

Q. Did you ever find any caffeine in the muscle after it had been taken by way of the mouth?

A. No, sir.

Q. You have made no experiments ——

A. I have seen the effects of caffeine.

Q. (Interrupting)—on these animals that you applied it to the muscle?

A. Yes, sir.

Q. You applied citrate of caffeine, as I understand you.

A. Yes, sir.

Q. Citrate of caffeine is a compound of citric acid and caffeine?

A. Yes, sir.

Q. Half and half — what is the effect of any acid applied directly to the muscle?

A. In that solution it would have some effect, but practically a negligent effect.

Q. Some effect?

A. Yes, sir.

Q. Well, how much effect? How much do you mean by some effect?

A. Well, as compared with caffeine I should say it was infinitesimal.

Q. Have you ever tried it?

A. Yes, sir.

Q. Have you applied citric acid direct to the muscle?

A. Yes, sir.

Q. What effect did that have?

A. Had an irritant effect.

Q. An irritant effect?

A. Yes, sir.

Q. It had the effect to contract the muscle violently?

A. I would not want to say violently contracted.

Q. Well, it contracted it, however?

A. Yes, sir.

Q. So when you applied the citrate of caffeine it also contracted the muscle?

A. No, sir; it contracted it but it also caused it to go into a different state.

Q. To do what?

A. To go into a condition that we call rigor mortis.

Q. Rigor mortis?

A. Yes, sir.

Q. Is it a fact, Doctor, that citric acid in that citrate of caffeine would very materially strengthen and make more powerful any effect that might be produced by the caffeine itself?

A. No, sir; I think not.

Q. Why didn't you use the simple caffeine?

A. It is not soluble — it is soluble.

Q. Why, then, if you wanted to get the results of caf-

feine itself, why didn't you take a solution of caffeine and apply it?

A. In the laboratory was a bottle of citrate of caffeine.

Q. Now, Doctor, you are undertaking to make an experiment to show and demonstrate the action of caffeine on the naked muscle, why didn't you use caffeine?

A. Because there was a bottle of citrate in the laboratory.

Q. Just because there was a bottle of it in the laboratory?

A. Well, there was a bottle there and I just used it.

Q. And yet you knew, Doctor, when you did that, that citrate of caffeine would act more powerfully than caffeine itself?

A. No, sir.

Q. Didn't you tell us a while ago — make an answer to that effect?

A. If I did, I did not intend to.

Q. Well, you have stated that the citrate itself would irritate the muscle?

A. Yes, sir.

Q. Now, knowing that, Doctor, if you wanted to make a fair test of the action of caffeine, why did you put it in combination with a substance that you know was irritating, why didn't you go and get the simple caffeine itself and apply it?

A. Well, the effect of the citrate in the solution used was infinitesimal.

Q. Why didn't you go and make a fair test and get caffeine—you knew the citrate was irritating.

A. Yes, sir.

Q. Well, you could have gone and gotten the simple caffeine.

A. Well, if you knew the Government service and the red tape necessary to get a bottle of caffeine you would know that it would be difficult.

Q. Were you instructed, Doctor, to make these experiments with respect to caffeine or citrate of caffeine?

A. No, I was not instructed in any way.

Q. How did you come to do it?

A. I wanted to find out.

Q. When did you make these experiments?

A. I think it was a few days ago—I think the date is on the tracings.

Q. How was that?

A. Within the last week or two.

Q. You made that with particular reference to this case?

A. Yes, sir.

Q. When you knew you would be a witness?

A. Yes, sir.

Q. And when you knew the question in issue was the effect of caffeine?

A. I knew in a general way the question at issue—I didn't know exactly.

Q. And about five cents would have bought all the caffeine you would have needed for that experiment, would it not?

A. I dare say.

Q. Well, five cents would buy plenty of caffeine to put into the muscles of several animals of that size, that is, of the size you were experimenting on?

A. Yes, I guess so.

Q. I would like if you would state again what that experiment was you made with the dog.

A. You say you want me to go through a description of that experiment again?

The Court: We will take a recess for twenty minutes.

(Thereupon, at twelve o'clock noon, the Court adjourned until 12:20 o'clock P. M. of the same day).

AFTER RECESS.

12:20 o'Clock P. M.

Court met pursuant to recess.

Present, same as before.

DR. WORTH HALE,

resumed the stand for further examination and testified as follows:

CROSS-EXAMINATION Continued

BY MR. SIZER:

Q. All right: you may answer my question.

A. I didn't understand exactly what you wanted, Mr. Sizer. Did you want me to go through a description of all the experiment?

Q. Yes; that is what I wanted you to do.

A. After the dog was anestheticized or put to sleep, so that the operation will not cause any pain, the chest cavity is opened. I will state before this the respiratory apparatus is arranged so that artificial respiration can be carried on.

Q. In other words, you pump air into him while you are doing all this?

A. Yes, sir.

Q. You do that?

A. Yes, sir; and then after the heart is exposed, a lever

is tied to the heart muscle directly by putting a thread through the muscle with a needle—sticking a needle through the muscle and fastening it——

Q. (Interrupting) You mean the muscle of the heart?

A. Yes, sir.

Q. What was it you used as an anesthetic?

A. Morphine and cholorotone.

Q. Are both of them very powerful physiological agents?

A. They have some effect.

Q. Well, they have a powerful effect?

A. No, not on the heart.

Q. Do you think it does not?

A. It will if it is in larger doses than we use.

Q. Well, chlorotone?

A. It will in much larger doses than we use.

Q. Well, you gave this dog a sufficient dose to put him to sleep?

A. Yes, sir; to render him unconscious.

Q. And this citrate of caffeine that you referred to as citrated caffeine is not citrate of caffeine?

A. No, sir; not the true salt.

Q. Citrated caffeine?

A. Yes, sir.

Q. It is simply a mixture of citric acid and caffeine?

A. Yes, sir.

Q. And isn't the citric acid free and the caffeine free?

A. I don't think I am prepared to state——

Q. Is there any chemical combination between the citric acid and the caffeine?

A. Well, there may be some chemical combination between them.

Q. Well, isn't it a very weak one, if any?

A. No, I don't know.

Q. And you simply took that bottle of stuff that you used in making these experiments, out of a bottle,—that citrate of caffeine, you simply took it out of a bottle?

A. Yes, sir.

Q. And you don't know whether it was citrate of caffeine?

A. It had that effect.

Q. It had that effect?

A. Yes, sir; it had the same effect that caffeine has——

Q. Well, how do you know it had the same effect?

A. I know it is the same substance.

Q. And that was taken out of a bottle that you say was sitting there in the laboratory?

A. Yes, sir.

Q. Where did you get it?

A. Got it in a case where the alkaloids are kept.

Q. As a matter of fact, you don't know anything about the preparation of the caffeine or citric acid in that mixture or whether there was any caffeine or citric acid except from the label?

A. I didn't analyze it.

Q. Well, you used that in all these experiments?

A. Yes, sir.

Q. Now, did you use an anesthetic with the other animals?

A. No, sir.

Q. How did you handle that frog that you spoke about?

A. It was killed by pithing.

Q. That is by punching an iron rod up through it?

A. Destroying the brain and the spinal cord.

Q. And running an iron rod up through him?

A. It might have been a match.

Q. Do you know?

A. I don't know whether it was a match or not.

Q. Didn't you run an iron rod clear through the whole length of the frog?

A. I could not say whether I used a match or an iron rod.

Q. Well, you killed the frog?

A. Yes, sir.

Q. And then applied this stuff what you call citrate of caffeine to his muscle?

A. I did.

Mr. Sizer: Now, may it please your Honor, we move to exclude the testimony of the witness as to experiments as to animals, because, in the first place, he used some material out of a bottle and he does not know what was in there and does not know whether it was citrate of caffeine or not; and, secondly, if it had been citrate of caffeine, it is a mixture of some other substance which the witness admits has an irritating effect on the muscle and that would not be, we submit, a fair test; and, in the third place, he admits that the affect of caffeine when applied directly to the muscle is different from the effect as taken in the mouth, because when taken into the mouth a large part is eliminated and does not reach the muscle as caffeine, and he does not know how much does reach the muscle, and furthermore, so far as the dog experiment is concerned, he gave him no more morphine and chlorotone in addition to the caffeine, both of which he says are powerful physiological agents.

The Court: I think that under all the circumstances

which these experiments were conducted, they are not sufficiently analogous to the matter that we have under investigation—and I exclude them.

Mr. Miller: As to one feature, there, I wish to ask him before having your Honor rule, and that is whether or not——

The Court: (Interrupting.) I don't think that this witness has qualified sufficiently to show that the effect of the substance that was applied to th muscles by him is the same as the effect of caffeine admi stered by drink —the degree of relevancy with which it should be admitted.

Mr. Miller: Well, I wish to ask him, your Honor—

The Court: (Interrupting). You may ask him on re-examination.

Mr. Miller: Very well.

Mr. Sizer: I thought you wanted to ask him something——

Mr. Miller: I want to ask him about the morphine.

The Court: I did not base it on that, I based it on the fact he used citrate of caffeine combined with citric acid, which the witness has stated would have a direct effect on the muscles, irritating effect, and not shown to be analogous to the action of pure caffeine when taken into the stomach in the form of a drink.

Mr. Miller: On that point, I give notice that I will wish to interrogate this witness as to the usual experiments in order to ascertain the effects of caffeine, and to show by him that the customary method is to employ a sufficient quantity of——

Mr. Sizer: Well, whatever the gentlemen may do——

Mr. Miller: I am not talking about the Government, I am speaking generally, in laboratory work, throughout the world.

Mr. Sizer: Well, that would not make it competent—

Mr. Miller: We propose to show that the method adopted by him is the accurate one by showing that this is the standard test, and before your Honor definitely rules, I would like to ask him about it.

The Court: Well, you may ask him further on re-examination.

CROSS-EXAMINATION:
BY MR. SIZER:

Q. I believe one time you took caffeine, you say, a two grain dose?

A. Yes, sir.

Q. That was on one occasion when it produced a confusion of ideas?

A. Yes, sir.

Q. Was that the only time you ever experienced a confusion of ideas, Doctor?

By Mr. Miller: Now, I object to that.

The Court: The objection is sustained.

Mr. Sizer: Well, I want to know how that caused confusion of ideas, in that particular case, that it resulted from two-grain dose of caffeine.

The Court: Well, that is excluded by the Court.

Mr. Sizer: That statement was made, your Honor.

The Court: Yes.

Mr. Sizer: It is a statement of his opinion.

BY MR. SIZER:

Q. I will ask you this, Doctor, how soon after you took the two grains, the two-grain dose of caffeine, was it you experienced the confusion?

A. I should say in half an hour.

Q. That was certainly a very abnormal and unusual result following the taking of but two grains of caffeine?

Mr. Miller: He has not qualified to speak in that respect. I have not caused to make him an expert in that behalf. If counsel agrees he is an expert, then I will have no objections.

Mr. Sizer: Well, I don't know.

The Court: You can ask him if it had any other effects on him.

The Witness: I have never given caffeine to patients, nor have I taken any caffeine myself otherwise.

BY MR. SIZER:

Q. So you are not prepared to say whether or not that was an unusual——

A. (Interrupting.) It is described as a result that often occurs.

Q. How is that?

A. It is described as a result that often occurs in literature.

Q. That particular result you experienced, the stimulation that followed the taking of the two grains of caffeine, why, that was a very abnormal and unusual result from a dose of caffeine of that size, was it or not, Doctor?

A. I am not prepared to say.

Q. In testifying as to the relative resisting power of men and mice, from the effects of caffeine, you based your statement solely on the Allard case?

A. No, sir; also on the Zenetz.

Q. The Allard case was a case where a woman took how much?
A. Nine grains.
Q. Nine grains.
A. Yes, sir.
Q. What was that substance?
A. Reported to be caffeine.
Q. Does the report indicate that she took anything else besides cafefine?
A. I do not know.

BY MR. MILLER:

Q. Is it not a fact that the report shows that she took theophyllin?
A. With reference to this case, it says caffeine there.
Q. Does it say anything about theophyllin in the original report?
A. I have never seen the original report.
Q. What report was it you saw?
A. Reported by Sollmon.
Q. You only base your statement on what Sollmon says about that lady's case and not from seeing the original report?
A. I have not seen the original report.
Q. Zenetz' case was the one referred to yesterday by Doctor Tyrode where the woman took about 22 grains of caffeine.
A. It was referred to before in this case somewhere.
Q. That was where the woman was unwell and took this caffeine?
A. Yes, sir.
Q. Did you ever read the original of Zenetz' case?
A. Yes, sir.
Q. That was a French report?
A. A German.
Q. Did you read the original report or a translation?
A. The original report.
The Court: Did the word "unwell" have any technical signification in that original report?
The Witness: Yes, sir.
Q. What is the word?
A. I do not recall.
Q. How do you know what the proper translation is?
A. I have to read German with a dictionary.
Q. You do not recall what the word was?
A. No, sir.
Q. Is it not a fact that that word is a word that might be used, just as simply as the word "unwell" in

English might apply to an ordinary condition or to a peculiar condition of a woman?

A. Sometimes the finer shades of translation are beyond me, not being a native German I would not want to say.

Q. In fact, you are so unfamiliar with this particular report that you do not remember the word used?

A. I do not say that I am unfamiliar, but I do not remember the word.

Mr. Hirsch: The word is *nicht ganz wohl,*—are those the words?

The Witness: They may be; I cannot tell.

Mr. Hirsch: What would you translate that?

The Witness: Not entirely well.

BY MR. MILLER:

Q. You were asked for an authority as to whether or not caffeine taken was excreted and thrown off in the urine.

Mr. Sizer: I didn't ask any such question.

Mr. Miller: I think you did.

Mr. Sizer: I asked him if he knew any authority that sustained him in the statement that caffeine applied to the muscles had the same effect as if taken in the mouth.

The Witness: I think it was my answer that said it was found in the urine.

The Court: You may look that up later and put him on the stand if you find that he asked any such question, but my recollection is that Mr. Sizer's question was limited just as stated by him.

Mr. Miller: I will have that looked up.

(Witness Excused).

DR. WILLIAM SALANT,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. What is your age?

A. Forty.

Q. What is your profession?

A. I am a pharmacologist.

Q. Of what institution or institute are you a graduate?

A. I graduated from Cornell University in the year 1894 with the degree of Bachelor of Science.

Q. Of Cornell University?

A. Cornell University, Ithaca, New York.

Q. And of what others?

A. I then studied biology; that is, natural sciences,—at Columbia University, New York City, for one year. Then I entered the medical department of the same university in 1895 and graduated from a regular course which was four years, making it 1899.

Q. What course did you take?

A. I hold two degrees, Bachelor of Science from Cornell, and Doctor of Medicine from Columbia University.

Q. What practical experience have you had and what has been your course of work and study since that time, since your graduation?

A. In the medical department for two years I devoted my time between the study of physiology at Columbia University and practical medicine at Mount Sinai Hospital.

Q. Located where?

A. New York City. For some time I had charge of the children's clinic at Mount Sinai.

Q. As such, what were your duties?

A. Physical examinations of the patients that came into the clinic.

Q. Did you have many or few patients?

A. Quite a good many; thirty a day.

Q. Did you have any connection with the Rockefeller institute, and if so, what?

A. From 1901 to 1907 I held the position of Fellow of the Rockefeller Institute in New York City. During that time for one year I taught physiology in the medical department of Cornell Medical School in New York City; and in 1905 to 1907 I taught physiological chemistry in Columbia University.

Q. What is physiological chemistry? With what does it deal?

A. The study of life processes in the body by chemical methods.

Q. That is the stimulation or preservation of life by chemical processes?

A. Yes, sir; you might call it that way.

Q. Now, what other experience have you had as demonstrator or teacher or student or pharmacology, physiological chemistry, or both?

A. In 1907 I was offered and accepted a position as professor of physiological chemistry and pharmacology at the University of Alabama.

Q. Where is that located?

A. Tuscaloosa, Alabama. In 1908 I accepted a position as pharmcologist of the United States Department of Agriculture in the Bureau of Chemistry, and was put in charge of the pharmacological laboratory, which posi-

tion I hold at present.

Q. Have you held that position continuously since?

A. Yes, sir.

Q. Are you a member of any societies engaged in biological research or pharmacological research, and if so, what?

A. I am a member of the following societies: The American Physiological Society, the American Society of Biological Chemists, the American Chemical Society, the American Society for Pharmacological and Experimental Therapeutics, the Society for Experimental Biology and Medicine, holding its meetings in New York City, and am also a member of the scientific society called the Sigma Psi of Columbia University.

Q. I will ask you whether or not you have contributed to the medical journals of the country from time to time articles dealing with these subjects?

A. I have contributed to the following: The American Journal of Physiology, the American Journal of Biological Chemistry, the American Journal of Pharmacology, the Journal of the American Medical Association, the proceedings of the Society for Biological and Medical Research; also some foreign publications.

Q. Some foreign publications?

A. Yes, sir; German publications,—both of them.

Q. Published in a foreign language?

A. Published in German.

Q. State whether or not you have been on the staff of any of these periodicals during these times.

A. I am a colaborator of the Journal of Pharmacology and Therapeutics.

Q. In the United States?

A. Yes, sir.

Q. Are you acquainted with the substance known as caffeine?

A. Yes, sir.

Q. I will ask you to state whether or not you have done any experimental work with it, and if so, over what period and with what character of animals, if any.

A. I have experimented with caffeine, or rather, more correctly I began my experiments with caffeine in January, 1909, and I have been experimenting practically up to date, up to about two or three weeks ago. I experimented on the following animals; Rabbits, guinea pigs, white mice, rats, pigeons, dogs, cats, frogs.

Q. How many of these animals did you experiment with or on?

A. Not less than six hundred, I know.

Q. What was the object of your experimentation? Was it in any ways connected with the Coco-Cola controversy?

A. I had absolutely nothing whatsoever to do with the Coca-Cola experiments, and I have made my experiments without any reference to the case whatsoever.

Q. What was the object of your experimentation?

A. The object of my experimentation was to get more accurate information concerning the drug caffeine.

Q. State if you experimented with a view of ascertaining, and if you did ascertain, what was the lethal or fatal dose of caffeine administered by way of the mouth to any of these animals. Take for instance, the case of a rabbit.

A. I would have to refer to my notes for these because I cannot at present remember it, as I sometimes do.

The Court: Define what you mean by a lethal dose.

Mr. Miller: I said lethal or fatal dose.

The Court: I thought you just said lethal, but if you said fatal, say within what time.

The Witness: You want the fatal dose first?

BY MR. MILLER:

Q. You may give the fatal dose to a rabbit and then tell what you mean by a fatal dose. That is, when it will produce death, within what time administered by mouth.

A. The fatal dose, the smallest dose required to produce death, say within three or four hours, that is what I mean by a fatal dose.

Q. Well, what did you find that to be?

A. I found that to be rather dependent upon the method of administration.

Q. Suppose it were given by the mouth?

A. By the mouth I found from two and a quarter to two and three-eights grains per pound; that is, for every pound of rabbit I had to feed or give two and a quarter to two and three-eighths grains—had to administer it, which is the correct word to use.

Q. If the rabbit would be fed caffeine in that way, state whether or not this substance was eventually brought in contact with the circulatory system and also the muscles, and if so, explain why.

A. It must be brought in contact because the symptoms—it cannot produce systems unless it enters the circulation and is brought in contact with the various tissues and organs of which the body is composed.

Q. Is it or not in that way brought in contact with the muscles?

A. It most certainly must be so. There is no question about that, although you cannot see it.

Mr. Sizer: I do not understand the witness to be qualified as an expert on that proposition. He just simply says it must have been brought in contact with the muscles and I submit that is not proper.

The Court: Have you made any experiments to determine whether so administered it does come in contact with the muscles?

The Witness: I had some evidence, some symptoms show it must be so. I will bring that out later.

Q. What are those symptoms which show or from which you state, in your opinion, it is brought in contact with the muscles.

A. The evidence I have for this is the following: In the first place, caffeine produces two kinds of convulsions. It produces what we call clonic convulsions, that is spasms, then a rest and then a spasm—alternating. It also produces another form of convulsion, a tonic rigidity, stays contracted. That is one evidence. The second evidence that it must be brought in contact with the muscles is this. Rigor mortis sets in with great rapidity with animals which are killed by caffeine. That has been the common observation in my laboratory, even my helpers know that.

Q. State whether or not it is necessary for caffeine to be brought in contact with the muscles to produce those symptoms which you have described.

A. It would follow logically that it is.

Q. What if anything did you determine as to the amount of caffeine that would produce symptoms that were referable to its effects on the nervous systems and the muscles as to dosage when injected into the veins—any of a rabbit?

A. In a rabbit, I found that three-tenths of a grain per pound of animal injected into the veins of the ear—no anaesthetic was given—injected into the veins of the ear, produced symptoms.

Q. If the caffeine be administered by mouth, does it reach the veins?

A. It certainly does.

Q. Did you or not inject caffeine into the peritoneal cavity?

A. Yes, sir; I did.

Q. If it be administered by mouth, does it reach the peritoneal cavity?

A. I don't know.

Q. You are not prepared to say as to that?

A. I am not prepared to say as to that.

Q. Now what, if anything, did you observe as to the effects of repeated doses where it was given daily?

A. The effect of repeated doses on what animals, rabbits?

Q. Yes.

A. I found three-quarters of a grain per pound given daily, either by mouth or sub-cutaneously, the following results were obtained: First, impairment of appetite and loss of flesh and strength. Then on the 9th and 16th days, some cases the ninth, some cases the sixteenth, from the ninth to the sixteenth days of the experiment, death.

Q. Was there any regularity in the time when the rabbits would die, or did that vary?

A. Repeat the question.

Q. Was there any regularity or sameness as to the length of time when the rabbits, which were fed on caffeine, would die, or did the time or dates of death vary from the beginning of the feeding?

A. It varied. Some, it was less than others; and some, it was only nine days, and some sixteen. There was quite a number which died after one or two days.

Q. State whether or not the diet appeared to be a factor in connection with the caffeine as to its influence—toxic influence on the human system.

A. On the human system?

Q. I will say on the animal system, you experimented only on animals.

A. Diet seems to be a factor in the administration of caffeine for this reason. Those animals that were fed oats and the same doses of caffeine showed a great deal worse than similar animals which were fed carrots.

Q. What was your conclusion from that if there be a scientific opinion or conclusion that you could draw?

A. The conclusion that I drew from it is the following: We found that is the pathologists in the Bureau of Animal Industry have reported in practically all the cases—

Mr. Sizer: We object to that.

The court: The exception is sustained. You can state your own conclusions.

BY MR. MILLER:

Q. That is what I am asking. What conclusion you drew as respects the carrot diet and the oats diet.

A. The conclusion I reached from that is this: That in the carrot diet, the body accumulates a large amount of reserve material commonly known to physiologists as glycogen, a sort of animal starch. This reserve material is usually drawn upon by animals during life, whether in fed or in a condition of starvation. It applies in this work because the animal would exist longer on this diet, having the reserve material, than on oats which favor or which

cause a much smaller deposit of glycogen so that there is a much less reserve material.

Q. Where is that reserve force stored?

A. It is stored as glycogen.

Q. But where, what function is it stored in?

A. In the liver.

Q. Is it likewise stored there in man?

A. It is stored in all animals that have been examined also in the muscles.

Q. Now, state whether or not the feeding of carrots would serve to increase this reserve force on storage?

A. It certainly would.

Q. State whether or not you made any observation as to the effect of a dose that was not large enough to produce death or to produce even symptoms of nerve disturbance when given once a day, where you would give it for several successive days, and if so, what you observed in that respect.

A. Please repeat the question.

(The question was read by the stenographer as follows: "Q. State whether or not you made any observation as to the effect of a dose that was not large enough to produce death or to produce even symptoms of nerve disturbance when given once a day, where you would give it for several successive days, and if so what you observed in that respect.")

A. I observed that if given for several successive days, a dose that will not produce any symptoms the first day — any visible effects the first day — would so after several days, say on the third day, for example.

Q. That would be of what nature, this effect you observed?

A. That looks like a cumulative effect.

Q. Describe its effects, how it visibly appears.

A. It produces nervousness, nervous irritability, muscular tremor, disturbance of the muscular functions you might call it.

Q. Now, if an animal received this dosage which did not produce any observable effect in the first instance, if he were in good health, and another received a like dose which was in poor health, or below normal, so to speak, what if anything did you observe as to the different effects, if any there were?

A. I found that animals that had been weakened for some reason or other, resisted caffeine much less. A dose insufficient to produce any visible effect on a well animal would produce such an effect when the condition of the animal had been deteriorated considerably—run down.

Q. Did you or not find that eventually the minimum fatal dose might be increased without producing death?

A. In a number of animals, rabbits—I found that one-third of the minimum fatal dose had produced death. It was found that pathological changes were present in such animals which leads me to conclude that in the presence of pathological condition, the toxicity of caffeine is increased. Furthermore, I can recall to my mind one case at present of a rabbit which was suspected of some pulmonary formulary disturbance. I gave him such a dose, one-third of the minimum fatal dose. He had violent convulsions. One hour later, he recovered from the convulsion and we found him dead next day. He had pneumonia.

Q. Did you make any observation to ascertain whether caffeine was a food that would sustain life when rabbits were undergoing a state of starvation, and if so, tell what you observed in that respect.

A. I have starved a large number of rabbits. That is to say, I did not give them any food for four or five days. At the end of this time I administered caffeine and I found that two-thirds of the minimum fatal dose produced death in a few hours, two or three hours.

Q. What were your conclusions from your observations and experiments as to whether caffeine was a food substance.

A. My experiences on this subject were as follows: I fed dogs on a constant diet, that is to say, I gave them the same diet which was a mixed diet, for quite a long period of time, three months. I examined the dog's urine, also his feces, to see how much nitrogen was eliminated. We also examined his food to see how much protein he took in.

Q. As a result of all this experimentation, did you or not reach a conclusion as to whether or not caffeine is a food value?

A. No, it is not a food.

Q. You reached the conclusion it was not a food?

A. I am positive caffeine is not a food on the basis of this experiment. It has no food value whatever. It does not act like it.

Q. Did you make any observations to ascertain whether the administration of caffeine or the consumption of caffeine in an animal, contributed to or increased the sugar in the urine, or disease of the kidneys known as diabetes or akin to that?

A. Yes, sir. I made a number of experiments on animals, rabbits, and also on cats. I found that if rabbits are fed carrots for a few days, three or four or five or given any other substance which contains sugar, such rabbits,

when given caffeine, will eliminate sugar in the urine.

Q. Now, if you fed these same rabbits those same substances without the caffeine, did you detect the presence of sugar in the urine?

A. I never found any sugar in such animals, and I have examined a great many of them, probably fifty or sixty, and that is a conservative estimate.

Q. What length of time is required to excrete or discharge the caffeine from the system, and how is it discharged or eliimnated?

A. The length of time required depends a good deal on the doses. A moderate dose, a dose which is not enough to produce symptoms, is eliminated in about twenty-four hours. Larger doses which do produce symptoms, take longer than twenty-four hours and it is eliminated partly—the result in the laboratory show it is eliminated, caffeine in the urine and in the bile.

Q. State whether or not it undergoes any process after it enters the body through the stomach when taken through the mouth, and if so what process or change is.

A. It is what we call demethylated. By demethylation is meant one of the methyhl groups is broken up and it is in this way reduced to a less poisonous substance, and eliminated as such in the urine.

Q. Have you or not discovered its presence in the urine.

A. We have discovered its presence in the urine.

Q. As respects other animals on which you experimented, say dogs, cats, and animals of that character, which you described a while ago, in a general way state what was the result of your experiment as to the effects of these substances on the muscles, on the tissues and on the circulatory system.

A. In a general way, the same as in rabbits. It required a smaller dose for the cat than for the rabbits, and a smaller dose for the dog than for the rabbit, about half of a fatal dose to the rabbit is fatal to the dog.

Q. The Court: By the pound weight?

The Witness: Yes, sir; and all the relations and conditions must be absolutely the same.

BY MR. MILLER:

Q. How was it with the guinea pig?

A.I will give you the exact figures. In the guinea pigs, a single dose from one to one and a fifth grain per pound per animal injected under the skin, or as we say in technical language, sub-cutaneously, produced symptoms or nervous irritability, and muscular irritability, sometimes referring to their effect on the system. A certain proportion

of guinea pigs died from the effects of certain doses. The smallest dose fatal to a guinea pig was about one and a half grains per pound an animal. That means this amount would kill practically every guinea pig.

Q. What character of animal life is the most senistive to the effects of caffeine, man, or the lower animals?

A. Man.

Q. Do you know in what proportion, or can you approximate the proportion of resistance or tolerance between man and other animals?

A. From my observations of people who take coffee, which in all probability contains about two grains caffeine to the cup, about three cups will produce symptoms in perhaps a great majority of adults, at least I have seen that in all individuals I have observed.

Q. In the case of children, is there any distinction between them and adults as to doses?

A. I have not seen the effects of coffee in children because I am on principle opposed—I have no occasion to notice it in children and I am opposed to giving it for experimental purposes. I have one boy and I don't allow him to take any coffee or tea.

Mr. Sizer: We object to that.

The Court: And the objection is sustained.

BY MR. MILLER:

Q. This animal experimentation, made with six or seven hundred animals, state whether or not that was performed by you or under your immediate supervision.

A. The great majority of them were performed by me. Some of them were performed under my immediate supervision, that is, I did the work, and practically in every case I watched the way the work was done. I always did some part of the work in every instance.

Q. In the demethylization of this caffeine, state whether or not the results which follow are a tax on the functions of the body, on the atomical structure, and if so how it taxes them?

A. I have no idea as to how it would tax them—I don't know whether it does any harm or not—I would not state—

Mr. Sizer: (Interrupting) I object to his idea.

The Witness: The reason is because we do not know; we do not know what happens.

Q. You do not know what happens in the taxation of the structure, but you know the effects?

A. We know it is demethylated.

Q. Do you know whether it requires force to dimethylate it?

A. I suppose——

Mr. Sizer (Interrupting) I object to that.

The Court: Yes.

BY MR. MILLER:

Q. Are you speaking from your pharmacological and physiological knowledge—or I will ask you speaking from your pharmacological and physiological knowledge, state whether or not, it does?

Mr. Sizer: I object to that; the witness has answered that he is unable to state. He has said he supposed it did. He said first that he did not know and then he said he supposed it did. Now, he wants to cross-examine his own witness.

Mr. Miller: I do not want to cross-examine him — I wanted him to give his reasons for stating that it does. He said that he had made a study of it for two years.

Mr. Sizer: He says he supposes so and so.

BY MR. MILLER:

Q. I will ask you whether or not you do believe it does, and if so, tell why?

Mr. Sizer: Now, I object to that.

The Court: Are you prepared to give scientific information from your readings and investigations, doctor?

The Witness: Your honor, it is purely an acedemic and theoretic question, I would rather not answer it at all.

CROSS-EXAMINATION,
BY MR. HIRSCH:

Q. Doctor how long did you say you were at Mount Sinai? The Hospital?

A. About two years. I would not call it practice, but had clinical work.

Q. That is the extent of your practice?

A. Yes, sir.

Q. Now, doctor you have said on your direct examination that you have experimented on rabbits, guinea pigs, white mice, rats, pigeons, dogs, cats, frogs, and possibly one other animal I didn't catch.

A. Well, I didn't quite understand you.

Q. I said on one other animal the name of which I did not get.

A. And Frogs, that is all.

Q. That is all?

A. Yes, sir.

Q. Now, doctor, are you prepared to state that in the case of each one of the experiments on the animals the amount of caffeine that you gave in each instance, how it

was given, whether it was given over a long period, or all of it given at once?

A. Yes, sir, I had two sets of experiments, in one of these experiments I gave one single dose; in others I gave it over a period of time.

Q. Did you do that with each and every one of these animals?

A. Each one, certainly.

Q. Did you give each and everyone of the animals that you have testified about this morning, caffeine by the way of the mouth?

A. I beg your pardon.

Q. How did you give the caffeine, by way of mouth, or did you inject it into the system?

A. I will tell you the whole thing we gave pure caffeine dissolved in water, I gave it in the following way: Some animals I gave it by mouth, some animals I gave it under the skin, as sub-cutaneously, that is two methods; third, into the peritoneal cavity, fourth, into the muscle, five, into the veins.

Q. Now, doctor, in these animals you say you found sugar in the urine. Did you give caffeine by itself?

A. Straight caffeine.

Q. Not caffeine salycitate?

A. No, sir; I did not.

Q. Now, in your animal experimentation—this is your article is it not?

A. Yes sir, that is my article.

A. Yes, sir, that is my article.

Q. Is it not true that in this article you state that experiments were carried out on rabbits, and show that caffeine when given in sufficient quantity produced gyclosuria?

A. Yes, sir.

Q. You do not say in any certain dose it produced gyclosuria, but just say in sufficient quantity?

A. I said given in sufficient quantity.

Q. What quantity would you have to give?

A. The smallest quantity was 70 milligrams per kilo, which means about one-third of a grain per pound.

Q. And the average rabbit weighs about what?

A. That would not make any difference.

Q. Just answer my question.

The Court: It has been shown that the average rabbit weighs about four pounds; that has been proven.

The Witness: Mine weighed from three to four pounds.

BY MR. HIRSCH:

Q. Now, what other animals did you experiment on,

that is in this report I have just produced to you, in which you tried to find sugar in the urine?

A. I don't remember that I reported on any other animals in that paper, but I did find it in cats.

You did find it in cats?

A. Yes, sir.

Q. You didn't find it in dogs?

A. No, sir, I did not.

Q. Could you not find it in dogs?

A. No, sir.

Q. Did you find it as constantly in cats as you did in rabbits?

A. No, sir, but when I did find it the quantity was very large.

Q. But you didn't find it as constantly in cats as in rabbits?

A. Well——

Q. And rabbits are more resistant to caffeine than are cats?

A. Yes, sir; they are more resistant to caffeine so far as the nervous symptoms are concerned.

Q. Doctor, I noticed you stated that in some of your experiments, I didn't quite catch which one, that certain pathological conditions were found?

A. Yes, sir.

Q. Who found them?

A. The gentlemen who testified here this morning, both of those gentlemen — Drs. Formad and Gallagher, and I think several others.

Q. You didn't find them did you doctor, yourself?

A. Well, I did but I would not consider my own findings conclusive, I am not a pathologist and I wanted to be followed up in that by men who were much more competent in that line than I am.

Q. You are testifying from their findings?

A. Yes, sir, but I have seen it myself—they demonstrated it to me on several occasions.

Q. You have seen it yourself?

A. Yes, sir.

Q. You would not base it on your opinion?

A. No, not on my opinion—not on my own observation of any pathologic effects——

Mr. Hirsch: We object to that.

Mr. Miller: You didn't let him answer he started to tell what the pathological conditions were.

The Court: I don't remember just what he stated.

BY MR. HIRSCH:

Q. Well, please state?

A. The pathological lesions were found by pathologists of the Bureau of Animal Industry, and were shown to me—I generally do that, I like to see them for my own satisfaction.

Q. Doctor, what is the proper food for a rabbit?

A. There are several different kinds of diet for a rabbit.

Q. I am asking you what is the proper food for a rabbit?

A. I do not know exactly which would be the proper one—you can give him hay, oats, carrots, I think hay and oats are probably the best ones; they are the best ones, I think.

Q. He would do better on them than anything else?

A. I didn't understand.

Q. He would do better on them than anything else?

A. Well, on carrots too.

Q. You were asked if caffeine was a food, what do you mean by "food?"

A. By food is any substance, when taken into body—that is one condition of course—that would sustain life for a long time.

Q. Is salt a food?

A. Yes, sir.

Q. And you would be able to sustain life for a long time on salt?

A. Well, I might modify that, salt is not a food——

Q. Could you sustain life over a long period of time by any kind of food?

A. Well, how long a time.

Q. You stated in your definition, you said that food was anything that would sustain life over a long period, what do you mean by that?

A. You can live, yes, for a long time, weeks and months, on bread alone; I know that to be a fact.

Q. Now, you say anything that will sustain life for a week or a month is a food then?

A. Yes, sir; that will sustaine life for a month is a food.

Q. Now, isn't it a fact that anything that will create energy and heat for the body is also a food?

A. Yes, that is what is meant by sustaining life. Sustaining life is that which creates energy and heat for the body—heat alone is not enough, some poisons create heat—

Q. Doctor, can you give me the chemistry of caffeine?

A. No; I know it is trimenthylxanthine.

Q. You can give me its chemical name?

A. How was that?

Q. The formula?

A .No, sir, I do not try to remember formulas.

Q. The chemical name is trimenthylxanthine?

A. Yes, sir.
Q. Can you give me the chemistry of theophyllin?
A. Dimethyl-xanthine.
Q. What do you understand by thepurin bases?
A. Thepurin bases are xanthine, hypo-xanthine——
Q. Any others?
A. Guanin, adonine, monexanthine, that is one xanthine—also included in that group.
Q. Doctor, is there any food under your definition that would be sustaining to life that you have mentioned there, is there any food that will not produce in the body xanthine?
A. I didn't name any food.
Q. Is there or is there not such?
A. Food that will produce xanthine?
Q. Yes, that will produce xanthines in the body?
A. Yes, sir.
Q. Name some of them?
A. Neuclein.
Q. Well, all foods contain nucleins—would you name some ordinary food containing nuclein?
A. Well, take meat.
Q. Meat will do that?
A. Yes, sir.
Q. Can you give me the hystology of the cells of the body?
A. I did not qualify as an anatomist.
Q. You can't give it then?
A. I would not care to give it because I am not an anatomist.
Q. The cells contain neuclein?
A. Yes, sir.
Q. And nuclein by oxidation form what in the body?
A. Nucleins form xanthine bodies.
Q. Is that by oxidation?
A. Yes, sir.
Q. Now, does that change from nuclein to xanthine—create heat and energy for the body?
A. Yes, sir.
Q. Therefore that is a food is it not?
A. Nuclein is a food.
Q. How?
A. Nuclein is a food.
Q. Now, doctor, you have been asked about the dimethylization of caffeine into the body. What is caffeine dimethylated in?
A. Caffeine is dimethylated into simpler bodies — and probably into xanthine, in foods as—

Q. (Interrupting) Is that xanthine found ordinarily—naturally in the body.

A. Yes.

Q. It is not reduced to urea?

A. Nobody knows anything about that—

Q. You don't know whether it is reduced to urea?

A. I don't think it is.

Q. Have you ever found in your animal experimentations any effect whatsoever on the urea——

A. Any effect on what?

Q. Any increase in or decrease in the amount of urea?

A. I did not.

Q. Then there is no effect on nitrogenous metabollism, is there?

A. Caffeine has no effect on nitrogenous metabollism.

Q. By what process, or do you know by what process the caffeine has its methyl groups taken off in the body?

A. Well, yes——

Q. By what process is caffeine the result of xanthine?

A. I do not know—there is no literature bearing on the subject.

Q. No literature bearing on the subject?

A. No, sir.

Q. But it actually does it?

A. Yes, sir.

Q. Xanthine is a normal constituent of the body is it?

A. Is it found normally in the body you mean?

Q. Yes?

A. Yes, sir.

Q. And therefore it is a normal constituent of the body?

A. Not necessarily.

Q. Why not?

A. Because, I recall now, some experiments done by some scientists who fed to animals food which did not contain purin or xanthine, and they reported they could not find xanthine bases in the urine.

Q. Doctor, as man normally exists and normally lives, is not xanthine produced in the body?

A. Yes, that is so.

Q. Now, doctor, you have stated in your examination that this harm might come because the body had to work to produce xanthine—you would get additional xanthine in the body?

A. I didn't say anything about harm; I just spoke of effects.

Q. Doctor, you stated just now there was a certain kind of food in some experiments you referred to, performed by

some scientists, what experiments were those, and what food was given?

A. The purin free diet—I think they fed that diet with tea and coffee excluded, and substances like tea and coffee.

Q. (Interrupting) Anything given except something like tea and coffee?

A. Tea and coffee and substances like tea and coffee and substances containing the same ingredients, purin derivatives were excluded from the diet, of such, and these experiments were carried out and the urine did not contain any xanthine bodies.

Q. Did they only examine the urine?

A. Yes, sir.

Q. That is all?

A. Yes, sir.

Q. You could not state whether was xanthine in other parts of the body?

A. The urine was examined fully.

Q. Doctor, when you gave caffeine by mouth what method did you use, how was it given?

A. By the stomach.

Q. I understand, did you use a tube?

A. Yes, sir.

Q. You did use a tube?

A. Yes, sir.

Q. How much of daily diet would you have to give a rabbit to have a well fed rabbit?

A. It depends upon what you give him.

Q. I mean of the two different diets you mentioned, doctor?

A. Now, of carrots, oh yes, about 500 grams of carrots per day in some rabbits.

A. Yes, sir.

Q. I am not pinning you down to any specific rabbits?

A. Well, about a pound of carrots per day.

Q. And as to the oats and hay?

A. I didn't keep track of that; I have no quantitive data —oats are scattered in the cage.

Q. In your experiments, did you measure the food that was given to these animals before you gave it to them?

A. Yes, sir; the carrots.

Q. All the food?

A. It depends upon what kind of an experiment—some of them I determined very carefully.

Q. Well, what was the nature of these experiments that you determined very carefully?

A. In the experiments as to the effect of caffeine on the metabollism of dogs, the dirt was very carefully analyzed.

Q. Doctor, when it is practicable to experiment on human beings, does not that show better results than on the lower animals or more scientific results?

A. You say when it is practicable?

Q. Yes.

A. I would like to experiment on the dog first.

Q. Now, on the question of metabollism, experiments, was it entirely practicable to experiment on these people—

A. (Interrupting) No.

Q. Now, there was no reason to go to lower animals to experiment as to metabollism?

A. Yes, there was because if people are habitues to the use of tea and coffee you get really all the effects of caffeine on them—they have a sort of pathological normal——

Q. Well, these animals never took caffeine, they would be an absolutely foreign substance to them?

A. Yes, sir.

Q. Now, you could have conducted metabollism experiments, and you could have obtained the normal of the individual, whether he was taking caffeine or not?

A. He would have to change his diet and have to make preparations for a long time?

Q. Well, you could have done it?

A. Yes, sir, it can be done.

Q. And it would show more exactly or accurately and scientifically the effects of caffeine on the metabollism as far as humans are concerned?

A. In a way it is more exact, but you could not control the conditions with human beings as well as you could in dogs.

Q. Well, they have been controlled in the Department of Agriculture have they not?

A. I don't know.

Q. You were not there when experiments were performed on human beings?

A. No, sir.

Q. And you know nothing about them?

A. Yes, I know they were performed.

Q. Well, doctor, the introduction of urea and sodium chloride produces gyclosuria?

A. Yes, sir.

Q. Sodium chloride is a comomn salt, is it not?

A. Yes, sir.

RE-EXAMINATION,
BY MR. MILLER:

Q. Your experience is that human beings cannot be controlled so well as animals?

A. Yes, that is my experience.

Q. Is urea contained in the body, Dr. Salant?

A. Yes, it is the end product of metabollism, what is rightly termed a poison—you have to get rid of it, the body has to get rid of it just like some of xanthine bodies.

Q. Like xanthine bodies are?

A. Yes, sir.

Q. Now, you referred to xanthine as a poisonous product. Is it a waste product that must be excreted or discharged?

A. As a rule — that is we know or as far as we know from human knowledge ——

Q. Has xanthine any useful effect and result upon the body as far as you know, or in the human organism, has it a beneficial result?

A. I don't know; I don't see why it should be useful.

Mr. Sizer: I object to the last part of that answer.

The Witness: I don't see why it should be useful or how it could be useful.

The Court: As explained, the exception is overruled.

BY MR. MILLER:

Q. State what effect the supply of food has on the replacing of tissue waste, the taking of food I should say?

A. Why, it helps to build up the tissues which are in the ordinary routine of life destroyed.

Q. Will caffeine do that, doctor?

A. I would not like to try it on myself or on any human being. I do not see how it could.

Q. Are you prepared to state as to the relative weight of the brain of man and of the rabbit?

A. The average weight of the human brain is fifty ounces,—the rabbit is four grams per kilo — I will have to make some mathematical calculations.

Q. Well, take a pencil and just do it there — you can do it in a moment — give the approximate weight of the rabbit's brain.

A. It is about 125 times greater in man than in rabbits.

Q. Than in rabbits?

A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. You do not mean to say that the waste product formed in man's body performs no beneficial function?

A. He has to get rid of it ——

Q. (Interrupting) I say does it perform any function when it is in the body?

A. Which one?

Q. Xanthine?

A. There is no work on record — no experimental work on record to show the pharmacological action of xanthine with the exception of one which has been practically forgotten, a small piece of research, I do not recall any now.

Q. It performs no beneficial function?

A. It is waste product.

Q. And performs no beneficial function?

A. Well, it may under certain conditions.

Q. Does it generally in so far as the kidneys are concerned, stimulate the kidneys to their natural activity?

A. That may be so, that is theory.

Q. That is a beneficial function?

A. Well, stimulating the kidneys in order to get rid of the poisonous action of the urea — it is beneficial substance, certainly.

Q. You know by comparison the weight of the spinal cord of the rabbit and the spinal cord of man, you could figure that out?

A. I am very poor at figuring.

Q. Well, could you figure it out?

A. I don't remember the weights ——

Q. Well, the rabbit's is much larger in proportion to that of man?

A. Yes, sir.

Q. And in the case of frogs it is tremendously greater?

A. Yes, I believe so.

Q. Don't you know that, doctor?

A. I do not.

(Witness excused).

Mr. Miller: I have these questions that were asked of Dr. Hale by adverse counsel, in which he says:

"Q. Now what authority do you base the statement on that caffeine when taken into the stomach gets to the muscle as caffeine?

A. I base that upon my reasoning from the fact that it is circulated in the blood.

Q. I thought you said you got it from authority? What was the authority?

A. Well, if you will state.

Q. (Interrupting) The authority that states when caffeine gets into the stomach it gets to the muscle as caffeine?

A. I would not want to state it that way.

Q. Don't the authorities all say that when caffeine is taken into the system it is broken up and demethylated and transformed into lower xanthine products, and after

that into simpler xanthines?

A. In part.

Q. Now, then, suppose you took a dose of caffeine into the stomach, what proportion of that caffeine would be demethylated before it got to the muscle?

A. I don't know.

Q. Is it a fact it would practically all be?

A. I think not.

Q. Do you know, doctor, do you know?

A. Yes.

Q. Well, if you know, why can't you tell us how much gets there?

A. Well, the precise amount, the breaking down in so far as we know, and we know and the evidence is that part is not broken down, indicates it is with difficulty broken down, which leads me to the conclusion it circulates in the blood for a long time.

Q. On what do you base that statement?

A. Part of it is not broken down when excreted.

Q. You base that statement on any authority?

A. Yes, sir.

Q. What was the authority you refer to who made such statements as to that?

A. I wouldn't want to say for sure, but I think Cushny does — I know I have it.

Q. You know you have read it somewhere, but you don't know where.

A. Yes, sir."

Now, I propose to prove by Cushny that this statement is true that counsel has asked him about, and I will ask to recall Dr. Hale for that purpose. That is what the stenographer has handed me of Mr. Sizer's cross-examination.

The Court: If there is no objection to it, it may be offered.

Mr. Sizer: I didn't understand that.

The Court: If there is no objection to it, it may be offered.

Mr. Sizer: I made my objections awhile ago, I do not recall anything about the presence of sugar in the urine in his statements ——

Mr. Miller: I didn't ask that question. He was asked on what authority he stated that caffeine was discharged in the urine, and that is the authority — that is at the latter part of the questioning as I read it.

The Court: Well, all he is asked about, he said the authority showed that caffeine — that it was broken down with difficulty, and that it circulated in the blood a long time.

Mr. Miller: And if you will read his next statement, he says it is discharged in the urine.

The Court: I notice he is asked on what he bases the statement that caffeine is not broken down when excreted. He says he bases that statement on authority.

Mr. Miller: I am trying to show that it was excreted in the urine, and Cushny is quoted in that connection.

The Court: If he has made that statement, and it is not contradicted it will stand. I do not think it proper to introduce the book to back him up in it.

Mr. Miller: I will respectfully refer your Honor to Wigmore on that subject, where it is stated that where a witness is presented with a treatise on a given matter, or asked for his authority on redirect examination, that same authority may be produced and he may be asked to give the extract on which he bases his statement.

The Court: You may hand those citations to me together with the questions you have there and I will rule on it in the morning.

Thereupon, the Court at two o'clock p. m., adjourned until 9 o'clock a. m., Tuesday morning, March 21st, 1911.

Chattanooga, Tennessee,
Tuesday, March 21, 1911.
Nine O'clock A. M.

Court met pursuant to adjournment.
Appearances, same as heretofore.

PLAINTIFF'S EVIDENCE CONTINUED:

The Court: I have examined the authorities to which my attention was called by Mr. Miller, on the question of evidence raised before adjournment, and I am of the opinion that they do not relate to a question of this sort, text books for the purpose of contradiction on cross-examination—and I adhere to the ruling of yesterday.

Mr. Miller: Note an exception.

The Court: The exception may be noted.

B. A. GALLAGHER,

recalled to the stand for further examination, testified as follows:

DIRECT EXAMINATION:
BY MR. MILLER:

Q. Dr. Gallagher, you stated yesterday that one of these rabbits that was sent over to the Bureau of Animal Industry, was chloroformed by you. Will you tell which one it was by number?

A. It was number 29.

Q. About what time did it arrive at the Bureau of Animal Industry?

A. It arrived sometime during the morning.

Q. According to your best recollection, about what hour?

A. I do not know that—possibly around ten-thirty.

Q. And how long before its arrival, or after its arrival until you chloroformed it?

A. I do not know just exactly. I post mortemed the animal sometime around eleven o'clock.

Q. After it was killed by the administration of chloroform, then you say you post mortemed it: How long until it was delivered to Dr. Formad to take out the brain?

A. After I got through the post mortem examination, it was turned over.

Q. Was time was that?

A. It was turned over to Dr. Formad to remove the brain. And I recall that he removed the brain before lunch.

Q. You recall that?

A. Yes, sir; I watched him.

Q. And you have luncheon about what hour?

A. Twelve o'clock.

Mr. Miller: That is all.

Mr. Sizer: Stand aside.

Mr. Miller: We will have Dr. Morgan for just a moment.

(Witness excused).

F. P. MORGAN,

re-called to the stand for further examination, testified as follows:

DIRECT EXAMINATION:

BY MR. MILLER:

Q. Dr. Morgan, in this exhibit that you filed yesterday containing a summary of the number of rabbits, what they were fed on, the date of feeding, the length of time they lived after the feeding began, I noticed at the bottom a cross-mark opposite the word "chloroformed," and also noticed a cross-mark opposite certain rabbits by number. What do they signify?

A. That signifies that the rabbits were sent over to the Bureau of Animal Industry from the Bureau of Chemistry alive.

Q. And the others?

A. They were sent over dead.

Q. And those that were sent over that were not dead, did they die naturally?

A. They did.

A Juror: Lesions in the body have been mentioned?

The Witness: Yes, sir.

A Juror: They are things in the body that produce disease?

The Witness: Lesions are the results in the body of disease. For instance, if the mucous membrane of the stomach is swollen and it is so found by looking at it, that would be said to be a lesion.

A Juror: And could you say what those lesions would lead to?

The Witness: Lesions are some indication as to the cause which produced them, that is to say, some are and some are not.

A Juror: Tell us, in your opinion, what diseases would be produced in your body or mine, or any other human body.

The Witness: I could not tell in every case because different diseases sometimes cause similar lesions. For instance, if you find an ulcer in the intestine, you might not be able to tell just by loking at it whether it was an ulcer caused by typhoid fever or an ulcer from some other cause. I do not say that you could not, but you might not.

A Juror: Might not such a lesion be caused from outside infection or from inside use of unhealthy diet?

The Witness: Lesions in the body, generally speaking, may be caused by anything which brings about a diseased condition in the body. They are the pathological and abnormal effects produced. It is a general term.

A Juror: Could it be caused by spurious or unhealthy food or disease infection from outside, or both?

The Witness: Yes, a lesion, so-called, might be caused by any of those things you mention, but the kind of lesion gives some indication, as a general rule, as to the cause that produced it.

BY MR. MILLER:

Q. These rabbits that were fed, state whether or not they were given the normal food aside from the ingredients shown in this exhibit.

A. Yes, sir; they were given normal food in addition to those materials mentioned.

Q. Would inflammation be termed a lesion?

A. Yes, sir; certainly.

Mr. Miller: That is all.

CROSS-EXAMINATION,

BY MR. SIZER:

Q. When you say they were given normal food, you

mean they were given food you described in your testimony a few days ago?

A. Yes, sir.

Q. Besides the simple syrup in some cases the Coca-Cola syrup in other cases and so forth?

A. Yes, sir.

Q. Do lesions invariably produce some disease or do they sometimes remain in the body throughuot life and the person die from some other cause?

A. They are invariably the result of disease, or a diseased condition, but they remain in the body——

Q. (Interrupting) Undeveloped?

A. — and the body may die of some other cause. For instance, sometimes we find in the lungs that a person gives signs of having had tuberculosis early in life, and the scars or lesions, remain, and yet the person dies from something else.

(Witness excused).

DR. H. C. FULLER,

recalled for further examination, testifies as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. I will ask you, Doctor Fuller, if you have prepared so that it can be preserved an identified the remnants of animal life which you found in this analysis which you made of this one keg of Coca-Cola syrup.

A. Yes, sir.

Q. Have you that present?

A. Yes, sir.

Mr. Miller: I suppose it might be more proper to exhibit it and file it as an exhibit.

Mr. Sizer: They were filed several days ago.

Mr. Miller: They were said to be offered in evidence but not filed.

Mr. Sizer: You certainly offered them in evidence.

Mr. Miller: Yes, sir; but I never asked that it be filed and I never offered to have it lettered, and I now offer it and ask to have it lettered after the last exhibit.

The Court: That may be done.

BY MR. MILLER:

Q. Have you or not examined many specimens of Coca, Doctor?

A. I have.

Q. State what other substances—marked substances or ingredients if any—are always found in the Coca.

A. Cocaine, allied alkaloids and chlorophyll.

Q. Did you find in the examination of this Coca-Cola syrup which you examined and of which you furnished the analysis on the former examination, any chlorophyll?

A. No, sir.

Mr. Sizer: That subject I know was gone into thoroughly on the examination and on the cross-examination and the Doctor said he found no chlorophyll.

The Court: That is my recollection.

Mr. Miller: If he said that, the question is withdrawn, but if he did not I will make the testimony later.

The Court: My recollection is that has been gone into fully.

Mr. Sizer: I know Doctor Fuller testified on that for I read his testimony the other day.

The Court: Did you testify about that?

The Witness: Yes.

BY MR. MILLER:

Q. Did you find in that examination any constituent he coca——

Mr. Miller: Did I ask that question the other day? Will you agree that that was asked, Mr. Sizer, and that the answer was in the negative? If you do, I won't go into that.

The Court: Did you testify on that?

The Witness: That was brought out on cross-examination.

The Court: You did testify on that point?

The Witness: Yes, sir.

Mr. Miller: If that is conceded, it is all right.

The Court: That is my recollection, and the witness states that he did.

Mr. Miller: I have not been able to carry all these things in my mind.

Mr. Sizer: I am not conceding the exact language of the answer but I know that the question was asked and an answer was given, and the record will show what the answer was.

BY MR. MILLER:

Q. Do you recall whether you were asked as to whether there were any ingredients or constituents of coca in this mixture?

A. In the syrup?

Q. In the Coca-Cola syrup.

A. I was asked about cocaine and chlorophyll. I remember those particularly.

Q. I ask you now, to be clear, if you found any other constituents of coca in this mixture.

A. No, sir.

Q. I will ask you to state what was the per cent. of the alcohol in these mixtures that you furnished to Doctor Morgan on which he fed the rabbits or was supposed to have fed them, according to his testimony.

A. I gave him Merchandise No. 5 which contains sixteen per cent. of alcohol and I gave him a mixture of water and Merchandise No. 5 and caffeine. The amount of Merchandise No. 5 being fifteen cubic centimeters to 1235 cubic centimeters, and the caffeine being in the proportion of one grain to an ounce; and that would amount to about 2.10 of 1 per cent. of alcohol.

Q. What was the percentage of alcohol in the remainder of the mixture, do you think?

A. There was none.

Q. Is there any alcohol in Coca-Cola syrup?

A. A small quantity.

Q. What percentage?

A. From 1 per cent. to less. It varies. I found that it varied.

Q. Any alcohol in the simple syrup you gave him?

A. No, sir.

Q. I will ask you to make, or if you have made it, to pass to the adverse counsel and give one to the stonegrapher, a synopsis showing the various mixtures you gave to Doctor Morgan for this feeding as showing the percentage of caffeine and of syrup and other ingredients contained in the mixture which you gave.

A. I have that.

Q. If you have that, will kindly pass them around? Just give one to the stenographer and file it and let it be properly lettered as an exhibit.

(The said exhibit was filed and lettered and is as follows:)

No. 1 Merchandise No. 5, containing 16.1 per cent. alcohol.

No. 2 A mixture consisting of 1235 cc. of water, 15 cc. Merchandise No. 5, containing 1 grain caffeine to the ounce. Alcohol 0.2 per cent.

No. 3 A solution of caffeine in water, each ounce containing 1 grain caffeine.

No. 4 A solution consisting of 50 per cent. sugar and 50 per cent of water.

Q. State whether or not you have examined Merchandise No. 5 with a view to ascertaining whether or not there was any cola shown, and if so, what percentage of cola you found.

A. I stated that I found one-tenth—1/100th of one per cent., I should say, of caffeine. Now, it was impossible

for me to tell from the quantity of the material whether it was in the form of extract of cola nut or not. If you wish to assume it was present as cola nut I can give you approximately the per cent. of cola that would be there.

Q. What was that?

A. In Merchandise No. 5?

A. Yes.

A. About five-tenths of one per cent.

Q. And in the case of Coca-Cola mixture, are you prepared to say whether or not this caffeine that was there found was the product of the cola plant, and if you say you are or are not, tell why.

A. I am prepared to state this: That it is not there in the form of extract of cola nut but I am not prepared to say from what it was obtained.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You say, Doctor, you are prepared to state that caffeine in Merchandise No. 5 was not derived from the cola nut?

A. In Merchandise No. 5, no, sir, not prepared to state it was not.

Q. You are not prepared to state it was not?

A. No, sir.

Q. The fact is when you find caffeine in any substance, is there any means of determining from what particular source that caffeine came?

A. I should not say that because there are instances where other ingredients that are present in those drugs will be found and from the other drugs you can obtain some indication as to what drug was used.

Q. How can you tell where you find these other substances whether mixed with caffeine or whether they and the caffeine together were derived from the same particular substance?

A. Well, I will have to give some example——

Q. No, just answer that. If you find free caffeine in any particular mixture and find other ingredients mixed with it or associated with it, how are you able to tell whether these other ingredients were mixed with caffeine separately or whether the caffeine and other ingredients came originally from the same substance?

Mr. Miller: Let him give an example.

Mr. Sizer: I want him to answer the question first.

The Court: If he can answer it by illustrating, he can adopt such method of answer as he deems proper.

The Witness: Of course, that is merely a question of experience.

BY MR. SIZER:

Q. It is a question of inference, in other words?

A. No, sir, it is not.

Q. Do you mean to say, Doctor, if you found free caffeine in a particular compound associated with other ingredients that you can tell whether the caffeine and other ingredients were derived together from the same substance, or whether the caffeine and the other ingredients were mixed in the compound and came from different substances?

A. Well, I say if I can give an example I think I can tell you.

Q. State whether, first, you can tell that.

A. Yes, sir, you can.

Q. Do you mean you can tell positively in every case?

Mr. Miller: Just let him give that example.

The Court: You may give an example.

BY MR. SIZER:

Q. I don't see why an example is necessary to answer a simple question like that. Now, I want to know if he can invariably determine and with positiveness whether free caffeine he finds in a mixture associated with other ingredients was originally derived with those other ingredients, from some substance or whether the caffeine and other ingredients were taken from different substances and mixed together.

The Court: The witness was first asked without the use of the word "invariably," and if he wishes to answer that question by illustrating he may do so. He may proceed to the last question if he does not care to explain.

The Witness: I should not think it invariable.

BY MR. SIZER:

And if you do it in any case it simply would be a matter of inference from the particular circumstances of the case?

A. It would not always be inference.

Q. You could take caffeine and take the other ingredients and mix them together, form in the compound, the caffeine and the other ingredients not being taken from the same substance, could you not?

A. You will have to be more specific.

Q. Well, could you do that or not? Could you form a compound of that kind?

A. That is too general. I would not want to make any answer.

Q. I want you to say whether you could do that or not?
A. I would not want to say either way.
Q. You are not prepared as an expert to express an opinion on that point?
A. Yes, sir; but it is a very broad proposition that you have brought up.
Q. You say you would not want to express any opinion about it?
A. No, I should not.
Q. Now, you say, Doctor, you do not find any cocaine and chlorophyll in Merchandise No. 5?
A. No, sir.
Q. You did find, I believe you stated on your former examination, certain aromatic substances, oils and things of that kind?
A. No, sir; that is in Coca-Cola.
Q. Did you find any of these in Merchandise No. 5?
A. No.
Q. Did you find any volatile matter?
A. Yes, sir.
Q. Do you know from what these volatile matters were derived?
A. Yes, sir.
Q. From what?
A. Coal tar.
Q. From what?
A. Coal tar.
Q. That is the scent of toluol that you received?
A. Yes, sir.
Q. And all the toluol that you discovered was the simple smell of it?
A. Yes, sir.
Q. You did not isolate any amount of it?
A. No, sir.
Q. So that the only volatile matter you discovered was a trace in Merchandise No. 5?
A. No, sir.
Q. What were the others?
A. Alcohol and water.
Q. Alcohol is not derived from coal tar?
A. No, sir.
Q. Were the alcohol and the water the only other volatile matters you discovered?
A. Yes, sir.
Q. You did not find any other voltatile matter except the water and alcohol and this odor of toluol?
A. That is all.
Q. Did you try it for anything else?

A. Yes, sir; I did.

Q. Doctor, when a sample of free caffeine is produced before you, it is impossible to tell, is it not, from what particular source that caffeine came?

A. Yes, sir.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. In this particular instance, that is, in the case of Coca-Cola, state whether or not you are able to state by reason of your analysis that the caffeine there found was not derived from Coca-Cola and if so, tell why.

A. You mean caffeine?

Q. Yes.

A. Itself.

Q. Yes.

A. You mean added as cola extract?

Q. Yes.

A. Well, in the first place the solution is a dark-brown —now, the extract of cola nut or in fact the fluid extract of the same drug, is a dark brown and it has a property of losing that color when you precipitate it with lead acetate. Now, you take this cola syrup and treat it with lead acetate, and there is no change in the color. Now, had there been any appreciable amount of extract of cola there, there would have been some diminution in the brown color, that is one reason. Another reason is that the total residue there, including the glycerine, caramel and sugar, would not permit of the quality of residue from cola extract that would have to be present, provided the amount of cola was in the mixture represented by that amount of caffeine; I do not know whether I have made myself clear there but there is a little figuring involved there.

There are two-tenths per cent. of caffeine found in the cola. Now, assuming that in cola there is two per cent. of caffeine, it would figure roughly one pound to the gallon.

I have these figures and if you care to have them submitted, I will do so.

One pound of cola in this extract will give about twenty-five per cent. of residue which amounts to about a little over three per cent. of the residue in this cola which would have to come from cola.

There is another reason, too, which I know for a fact, but it is in connection with the amount of cola that is imported into the United States. I do not know whether that is relevant here or not.

Q. I am not asking you as to that. State whether or not this caffeine, which has been in the Cola-Cola mixture

had been obtained from the cola, or was an extract from the cola, whether or not that would have appreciably increased the residue which you found after your analysis.

A. Yes, sir.

Q. Then are you or not able to state that the caffeine which you found in Coca-Cola was not obtained, that is all of it, was not obtained from the cola.

A. Well caffeine alone—of course you can't state—but what I was trying to bring out was it was not there as extract of cola.

Q. That is what I am asking you, whether or not it was there as extract of cola.

A. It was not.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor. if you extracted caffeine from the cola nut, that isn't extract from the cola nut, is it?

A. No.

Q. It is not?

A. No.

Q. And if you extract caffeine from cola nut, you would say that was not an extract from the cola nut?

A. Yes, sir.

Q. You say it was not?

A. Yes, sir.

Q. You do say, however that there is no method of telling by analysis of the Coca-Cola syrup whether the caffeine in its comes from the cola nut or from the coffee bean or from tea or from guarana or from any other source from which caffeine may be taken.

A. No, sir.

Q. There is not?

A. No, sir.

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. Explain the difference between extract of cola and caffeine pure.

A. Well, extract of cola is a solution of the ingredients or it may be a solution evaporated, of all the ingredients obtained by extracting cola by alcohol and water, and glycerine is also used in obtaining extract of cola. That, of course, includes caffeine and a number of other ingredients, common matter, volatile and other substances. Now, caffeine is one of these constituents, and when it is obtained alone and purified, it is not an extract of cola, or is identical with caffeine which is obtained from coffee, tea, guarana, and from what may be made synthetically.

Q. That is the difference, then, between the extract and the pure caffeine?

A. Yes, sir.

RE-CROSS EXAMINATION, BY MR. SIZER:

Q. You mean, as I understand you, that there was no extract in the coca-cola syrup that contained all the ingredients that might be extracted from the cola nut?

A. Yes, sir.

Q. That was the only ingredient included, caffeine, which might have been extracted from the cola nut?

A. Yes, sir.

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. If I understand you, not in the proportion it could be extracted from the cola nut? and have the same amount of residue that you found in Coca-Cola?

A. Well—I don't say—

The Court: (Interrupting.) That has been fully gone into, I think.

(Witness excused.)

The Court: Does the Government claim that the use of the word "coca" includes it is composed in any part of the extracts of cola—as distinguished from—

Mr. Miller: No, we do not claim that—I have no objection to going on record and stating our position, the position of the Government, that is we claim that in this product if cola was in it at all, it was very little, a mere trace, and hence it was an imposition.

Mr. Miller: I will ask Dr. Salant to take the stand.

Mr. Sizer: As I recall, your Honor ruled on that particular clause of the information when it was read, that it didn't make any charge—

The Court: (Interrupting.) I said that I understood counsel for the Government to agree that the charge that it contained little, if any, was not a charge that raised any issue as a matter of fact——

Mr. Miller: I stated our position, that it did contain little, if any, and if it be so little as to amount to an imposition, then it is a violation of this act, and I am prepared to show that in the argument.

The Court: This question is not very material anyhow, as to the cola, if your contention is right it does not contain an extract from coca, that question of cola is immaterial.

Mr. Miller: There are two barrels to the gun in that connection—I did not mean to invoke a ruling from your Honor at this turn, I have no objection to stating our position to adverse counsel.

William Salant, re-called for further examination, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Dr. Salant, state whether or no with your various experiments with caffeine, you determined whether or not caffeine, when fed by the mouth, would be excluded, or excreted, as some of the medical authorities use the term, in the urine?

A. Yes, sir.

Q. Did you or not find that it was thus excreted or excluded?

A. Yes, sir; I found caffeine in the urine after the administration of caffeine to animals.

Q. Was that in what you call the free caffeine form?

A. Yes, sir, free caffeine—the alkaloid.

Q. Did you or not find in these same animals that were fed caffeine that it existed in the bile as well?

A. Yes, sir, I found it in different kinds of animals.

Q. Did you make any investigations to ascertain whether or not it lodged in the brain on passing through?

A. No, I have not made any investigations as to that.

Q. You have not made any on that line?

A. No, sir.

Q. Now, from your investigation and scientific research, state whether or not it could be fed by mouth and discharged in the urine, it would of a certainty pass through and come in contact with the brain.

A. It must enter the circulation before the urine, and if it enters one part of the circulation, it has to circulate all through the body, including the brain.

Q. It does include the brain, then?

A. Yes, sir.

Q. And it comes in contact with the brain?

A. Yes, sir, of necessity so, certainly.

Q. State the relation between man, or the similarity between man and rabbits in the matter of circulation.

A. You mean physiologically?

Q. Yes.

A. Well, the anatomy is practically the same, the rabbit as well as man, has a heart, and blood vessels, and in order to reach the tissues, the blood must circulate in the rabbit as well as in the man, reaching every part of the body.

Q. Is that same thing true in man?

A. Yes, sir.

Q. State whether or not these experiments in which you discovered caffeine, fed by mouth was excreted in the urine, were conducted on rabbits?

They were conducted on rabbits.

Q. State whether or not caffeine administered by way of mouth is brought in contact with the muscles before being discharged.

A. If it enters the circulation, it certainly does, it must of necessity come in contact with all the tissues of the body including the muscles. Moreover, some of the symptoms show that it must be so.

Q. What are those symptoms?

A. For example, chronic rigidity of the muscle, of which I spoke yesterday.

Q. What muscle is that?

A. All the muscles, the voluntary muscles anyhow.

Q. I will get you to state whether or not your findings as to the discharge of urine, I mean the discharge of caffeine in the urine, has been announced for some months publicly to the medical profession of the United States, and when it was announced in fact.

A. The presence of caffeine in the urine has not been published, but the presence of caffeine in the body has been published in the proceedings of the Society of Experimental & Biological Medicine, it was presented there in May, 1910, about a year ago.

Q. At what meeting and where was the meeting held?

A. In New York City.

Q. In order to determine the physiological action of the drug, if given animals to experiment on—I mean, in order to determine the character of the drug or the name of the drug, if you were given a drug, to give an animal to experiment on, state what is the usual and customary test to determine the character or name of the drug—that is, if there be one required by medical authorities.

A. The most accurate and the most delicate test for drugs is by experiments on animals.

Q. How did you determine as to the drug if you didn't know the name of it?

A. From the characteristic symptoms.

Q. And by that do you or not mean the physiological action direct on the animal?

A. Yes, sir.

Q. Is that or not recognized as a standard test to determine what the drug is?

A. It is by medical men.

Q. State whether or not tests of that kind are generally recognized by the medical profession.

A. I have said it was recognized by medical men.

BY MR. HIRSCH:

Q. In making this test to find out a substance when it

is a new substance that the medical profession do not know anything about, is it not necessary in testing the animal to use right alongside of it, side by side, a control animal that is given the same things but without the substance you are testing? Having the same conditions surround both animals.

A. All scientific experiments are carried out with controls, or should be done, to be scientific.

Q. And these controls should be worked at the same time and under the same conditions exactly as the test animal?

A. Yes, sir. Exactly so.

Q. You state that caffeine was eliminated in the urine in all the animals you experimented on?

A. I have not examined the urine of all the animals experimented on. That would be impossible—for caffeine. But all those I did examine and give caffeine—that is to say—

Q. (Interrupting.) Now—

Mr. Miller. Let him answer. He said "That is to say" —showing he has not completed his answer.

A. (Continuing.) That is to say, I gave some animals caffeine and I examined their urine and in those animals I found caffeine.

Q. But is it not a fact that as to whether the caffeine would appear in the urine as caffeine, would be dependent on the quantity you gave?

A. I don't know about that.

Q. Did you not state in your examination yesterday that the body has a means by which it can demethylize?

A. Yes, sir, I did.

Q. Then as to how much it can demethylize is dependent on the quantity you gave?

A. That may be a factor—that may be a factor, I am not positive.

Q. That is a factor?

A. That may be a factor. I didn't say it is a factor.

Q. Will you state whether or not you can find caffeine in the urine as caffeine—whether that depends on the quantity you give?

A. You are asking the same question.

Q. I am. You say it may or may not be so?

A. In order to determine that I would have to carry out experiments with different quantities of caffeine and then I could give a positive answer. Otherwise I would not care to give an answer.

Q. What test did you use on those animals in which you say you found caffeine in the urine to ascertain

whether or not it was pure caffeine?

A. First, the general neuraxic test, which is not positive but simply gives a clue as to whether it belongs to that group.

Q. That will not tell you—

A. No, I simply say it gives you an idea whether it belongs to that group. That is negative, and then there is no use in going any further. Do you understand that?

Q. Yes, I understand it.

A. Then the crystalline appearance of it, and if the neuraxic test is not negative you can proceed further.

Q. If it responds?

A. Yes, sir. In some cases, similar experiments, I use the animal test—that is to say, I took the product and injected it into a frog and saw whether the chemical test is corroborated. If the frog responds then I am positive it is caffeine. In other words, we use the chemical and the biological test both.

Q. As far as the neuraxic test, if there was a response that did not tell whether it was theobromine, theophyllin or caffeine?

A. No, sir.

Q. But simply told you it was one of the xanthine bases there?

A. That is it, one of that group.

Q. Now, you state you found caffeine in the bile?

A. Yes, sir.

Q. Is that or not dependent on the quantity you would give as to whether you would find caffeine in the bile?

A. That would hold true, but I have made no experiment with different quantities of caffeine introduced into the body and then look for its appearance in the bile. I can not give an answer without having experimented with different animals, and I have not done that.

Q. Now, could you tell from the tests you used as to whether the substance you found was theophylline, theobromine, caffeine or xanthine?

A. The chemical data, together with the biological, makes it absolutely conclusive that it was caffeine.

Q. What was the chemical test?

A. I do not remember.

Q. Have you any idea as to what the chemical test was?

A. I have no idea, I do not remember, it was done under my direction though, and always carried out in my presence, but I cannot recollect.

Q. What other tests did you make—did you make any besides the neuraxic and chemical tests?

A. Yes, sir; I made the meuraxic test and then the

crystalline appearance of the caffeine.

Q. Did you make a sufficient test to separate the theophylline, theobromine and the caffeine and the xanthine?

A. No, I never supposed it was theophyllin or theobromine in that test.

RE-DIRECT EXAMINATION, BY MR. MILLER:

Q. What do you mean by in addition to these two tests that counsel refers to that you made what you call the biological test?

A. By injecting into a frog.

Q. When you injected that substance, it was discharged in the urine and it was afterwards subjected to tests which adverse counsel referred to, and what result did you get in the frog with what was taken from the body?

A. I didn't do that with what was taken from the body.

Q. I say, what effect did that produce on the frog?

A. Repeat that question?

Q. After the two tests to which counsel referred, you obtained these substances which you say you injected into the frog, and what result did you get from the injection?

A. The caffeine obtained fro mthe animal tissue, which I examined, which I gave the frog, gave him the same symptoms as the pure caffeine which I used for my animals.

Q. Did you or not have control animals at the same time you were carrying on these caffeine experiments on other animals.

A. Oh yes, there were plenty of animals in the laboratory which were given other drugs besides those that were given no drugs at all, so that we always have means of comparison. That was the method right along in my laboratory.

Q. You had, then, control animals as respects the caffeine?

A. In all the experiments I make, I have normal animals present, so that I can compare them with the ones I am experimenting one.

Q. Is caffeine what is called a new drug?

A. I don't know what you would call a new drug. It is eighty years old.

Q. Eighty?

A. It was first found in 1820 or 1823.

Q. It has been known to the medical and scientific profession ever since?

A. Not since 1823 but from about 1838, when the first animal experiments were performed with caffeine.

Q. What experiments did you make to ascertain whether this caffeine, when administered by way of the mouth,

was secreted or neutralized by the liver?

A. I have not performed any such experiments, showing that it was neutralized.

Q. I asked you what, if any, experiments you made as respects the liver, tell what they were and what they were made for.

A. I made experiments in which I ground up the liver and added various amounts of caffeine, or rather the experiments were done at my suggestion and I gave advice from time to time, and we found that the caffeine is not destroyed by the liver.

Q. How did you determine that it was not destroyed by the liver?

A. I cannot give the details, because that was done under my suggestion, and I gave advice from time to time but I did not do the chemical part of it.

Q. Who did the chemical part of the work?

A. Dr. Emory was my colleague.

Q. Is he present?

A. Yes, sir.

Q. That was done under your advice and suggestion?

At my suggestion and with my advice.

Mr. Miller: That is all.

RE-CROSS EXAMINATION, BY MR. HIRSCH:

Q. Now, this substance which you obtained from the urine of these animals you experimented on by the neuraxic test, could have been theophyllin, theobromine, caffeine or xanthine?

A. Yes.

Q. And would not xanthine have practically the same effect as that you attribute to caffeine?

A. I do not think so but I do not know. I have not studied xanthine.

Q. You do not know?

A. I have not studied xanthine. I have studied caffeine only.

Mr. Miller: If it be true that you would grind up the liver of an animal in connection with caffeine and retain that at a normal temperature, and after standing a number of days, the amount of caffeine added originally was practically the same, that that amount would practically be recovered, what would that prove to you?

A. It would prove that the caffeine was not destroyed by the ferments of the liver, that the liver does not contain any ferment that would destroy caffeine.

BY MR. HIRSCH:

Q. How did you prove that that was caffeine?

A. I injected it in a frog.

Q. And the same would hold true as to that, that you did not know if it was xanthine or caffeine.

A. From all appearance, it was caffeine.

Q. But you don't know that it was caffeine?

A. I have never handled xanthine myself, but I know something about xanthine.

Q. You know something about xanthine? Would not xanthine have the same effect that you found?

A. I don't think so.

Q. Why not, and how does it differ? Why don't you think so?

A. As I gather from reading, xanthine does not produce exactly the same nerve and muscle symptoms.

Q. You say then that the effects of caffeine are not the same as those of xanthine?

A. I would not like to say that because I have not investigated as to the pharmacology of xanthine, and I do not know of any positive authority on the subject.

Q. Why did you not try the action of xanthine—why didn't you try all of those things, if it could have been xanthine, theophyllin, theobromine or caffeine, why didn't you try each to ascertain which one it was?

A. For one thing, theophyllin, pari-xanthine, or any of those bodies, require pretty large quantities to produce effects, and we do not work with very large quantities. Caffeine in the amounts produced would have given those results.

Q. Is not parixanthine or theophyllin powerful muscular stimulant?

A. Not as powerful as caffeine.

Q. Not as powerful as caffeine?

A. Certainly not.

Q. What experiments did you make to find that out?

A. I did not perform any experiments but I know that as to the substance.

Q. As to the substance? Are they not more powerful muscular stimulants than caffeine?

A. No, sir.

Q. But you don't know from experiments?

A. No, sir; not from my own experiments. I have not performed any experiments either with theophyllin or xanthine.

Q. What experiments do you know it from?

A. I cannot recall the literature, but I think I can find the reference in my notes.

Q. How do you know that what you found in the bile is caffeine?

A. The chemical tests that I referred to.

Q. Is that the only test you made?

A. In the body, yes.

Q. Is that sufficient to identify it?

A. Under the circumstances, I think it was.

Q. Was that the meuraxic test?

A. No, sir; that was not the meuraxic test.

Q. What kind of a chemical test did you use?

A. The crystalline appearance if it—I can't remember the chemical test.

Q. Does not paraxanthine crystallize?

A. Oh yes, but not the same kind.

Q. What is the difference between the crystals of paraxanthine and caffine?

A. I don't know. I did not qualify as a chemist, and I cannot tell you.

(Witness excused.)

W. O. EMERY, the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION BY MR. MILLER:

Q. Are you the Dr. Emery that has been just referred to by Dr. Salant, during his examination on the stand, as his associate?

A. Yes, sir.

Q. I will ask you to state whether or not you made any chemical tests to ascertain whether or not caffeine was found in the bile and in the urine of these animals which Dr. Salant has talked about, in either or both, and if you say you did, tell what chemical tests you resorted to.

A. I examined bile only.

Q. What did you find as to the presence of caffeine?

A. Caffeine was issolated as such in the pure form, and we used the usual chemical identification tests, and then it was given to Dr. Salant for physiological application.

Q. By that you mean to inject it into something?

A. I suppose so, yes.

Q. State whether or not you made any experiments as respects the liver in connection with caffeine to see what became of caffeine after it reached the liver in the human organism, and if so, what did you do in that behalf?

A. A great many experiments were performed on beef liver, ground with or without sand, to which varying amounts of pure caffeine were added, and these mixtures warmed or maintained at a uniform heat about the body temperature, thirty-seven degrees Centigrade, and then these mixtures examined for caffeine, or the derivatives of caffeine, the xanthines, the demethylated products. In

all cases the experiments showed that little or no caffeine was demethylated for the reason that most of the caffeine was recovered and identified by the usual tests.

Q. When you speak of thirty-seven degrees Centigrade, what does that mean as respects normal temperature?

A. That is the normal body temperature, about the body temperature.

Q. How long were these livers permitted to stand at that normal temperature before you resorted to the test to ascertain whether the caffeine was yet there?

A. Oh, yes, one, three, five or seven days. I think seven days was the longest period.

Q. What did you do with this caffeine which was recovered from these livers?

A. I have not all the details now clearly in mind, but in general, the mixture was raised to the boiling point after—

Q. I don't mean what you did to determine that, but what you did with the caffeine when you got it out?

A. The caffeine was tested as to the melting point and the usual physical characteristics being noted, the crystalline form, melting point, the sublimation, the behavior toward silver, whether or not it would or not produce the silver salts. Those were the main tests.

Q. After that was done, what did you do with the caffeine?

A. A portion of the caffeine was delivered to Dr. Salant for tests.

Q. What character of tests?

A. Physiological, I suppose.

Q. State whether or not these tests you resorted to to identify this recovered product as caffeine, were the usual and standard tests resorted to for that purpose?

A. I should so regard them, yes, sir.

CROSS-EXAMINATION, BY MR. HIRSCH:

Q. Do you know whether or not the question of decomposition of caffeine in the liver—whether different results would be brought about by different animals, or have you only tried one case that you mentioned?

A. I tried two—the livers from two different animals.

Q. Which animals were they?

A. Rabbits in the one case, and in all other cases, cattle—beef liver.

Q. Now, you do not know whether that would be true in other animals or not, do you?

A. I have no idea.

Q. Exactly what method did you use to determine

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whether what you found was caffeine?

A. I isolated it?

Q. After you isolated what you found, how did you determine it was caffeine?

A. I observed that it was a crystalline residue, needless, melting about 233 or 234, as I now recall, sublimed apparently without decomposition, and gave no silver salts when treated with dilute ammonia and silver nitrate.

Q. Now, you found no other substance besides the caffeine?

A. In the final residue?

Q. No, that which you first found.

A. I cannot say what was found in the residues which were examined for increase in nitrogen over the control carried out at that time. The increases were very slight, and would indicate that none of the caffeine had been demethylated.

Q. How much caffeine did you recover as such?

A. I used all the way from half a gram, to, I think, in one case, five grams.

Q. How much did you recover of pure caffeine?

A. I have recovered up to ninety-seven and ninety-eight per cent.

Q. Some of it was demethylated?

A. There has been some loss.

Q. That was a dead operation?

A. Naturally.

(Witness excused).

PROFESSOR ALBERT P. MATTHEWS

the next witness brought on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER.

Q. Professor Matthews, what is your profession?

A. I am professor of Physiological Chemistry in the University of Chicago.

Q. Where were you first educated, Professor Matthews?

A. I was educated in the Massachusetts Institute of Technology.

Q. In what State?

A. Massachusetts.

Q. Where did you attend school before going there?

The Court: Just ask one question, to give his medical education.

BY MR. MILLER.

Q. I will ask you first where you were born?

A. I am a native of Illinois. I attended the common schools of Illinois.

Q. In a general way, state how you obtained you education after leaving the School of Technology at Boston where you studied, and approximately how long, and bring your career down to the present.

A. I studied two years at the Columbia University in New York and then two years further time in Cambridge, England, and part of the time in Germany, and for some months in Naples in Italy. I then returned to this country, and spent another year studying at Columbia University and took my degree there as a Doctor of Philosophy. I then became an Assistant in Physiology in the Harvard Medical School.

Q. Located at Boston?

A. At Boston; also an Instructor in Physiology at Tufts Medical School, also in Boston. I was afterwards an Instructor in Physiology at the Harvard Medical School and in 1901 I went to the University of Chicago to take charge of Physiological Chemistry, and temporarily of Pharmacology there.

Q. Have you or not studied and made animal experimentation both in physiological chemistry and pharmacology?

A. Yes, sir; my line of investigation is on the chemistry of the cell and its physiological behavior and the method of action of poisons and drugs upon it. I have published several papers on that general line.

Q. That would be termed the chemical composition of the cell?

A. In a general way, yes, sir.

Q. I will ask you to state whether you are acquainted with what is known as the nuclein acid.

A. Yes, sir; I am acquainted with it.

Q. State whether or not that is found in all forms of animal life.

It is found in all kinds of cells,—in all forms of animal life.

BY MR. MILLER:

Q. Part of the cell structure?

A. Yes, sir; part of the nucleus where there is a nucleus in a cell.

Q. During your professorship at the University of Chicago, what number of pupils have you had under your supervision and direction annually?

A. You say annually?

Q. Yes, sir; on an average, Professor.

A. Well, sixty or ninety a year is the average.

Q. During the time you have occupied this chair in the University of Chicago, have you affiliated with any other institution or institutions at the same time, and if so, what?

A. I am also professor of physiological chemistry in Rush Medical College, which is affiliated with the University.

Q. Is Rush Medical College located in Chicago?

A. Yes, sir.

Q. Now, you are acquainted with a substance termed "caffeine?"

A. Yes, sir.

Q. Are you acquainted with its physiological action when administered by mouth or subcutaneously?

A. Yes, sir.

Q. What is the difference between the administration by mouth and administration subcutaneously, as it has been termed—that is, by injection?

A. The difference in effect is simply one of degree. It takes a larger dose to produce the effect when given by mouth than when put under the skin.

Q. You mean, to produce the effect or to produce an observable effect?

A. An observable effect.

The Court: Which has the greater effect?

The Witness: When put under the skin.

BY MR. MILLER:

Q. When you speak of effect do you mean the effect in the abstract, or do you mean an observable effect?

A. I mean an observable effect.

Q. Now, assuming that an animal or a human were given caffeine by way of the mouth and then caffeine was afterwards discharged in the urine, I will get you to state from your experience, observation and study of anatomy, physical chemistry and pharmacology, whether or not caffeine would pass through the portion of the brain or all of it before it would then be excreted.

A. It would pass through the brain.

Q. What would be the course that the caffeine would take, what route, so to speak, would it take before it would be excreted, or discharged?

A. It is absorbed in the blood from the intestines.

Q. It goes first into the stomach?

A. Yes, sir; and then into the intestine, and then it is absorbed from there in the blood, and by the blood it is distributed throughout the body.

Q. Now, when it gets into the blood, how does it reach the brain?

A. Well, the blood carries it there.

Q. What would you say as to whether or not it would be brought in contact with the muscle?

A. It is certainly brought in contact with the muscle.

Q. If administered by way of mouth?

Yes, sir.

Q. What is the physiological action of caffeine on a muscle when brought in contact with it?

A. It causes rigor, coagulation of the muscle.

Q. And by that you mean a stiffening and hardening?

A. A stiffening and hardening.

Q. State whether or not the effect of muscular contact is or is not well known and recognized by pharmacologists and physiological chemists.

A. It is a well known and well recognized fact.

Q. Now, what is the action of caffeine when it is administered by mouth as to the human anatomy, commencing with the human muscle, then the cord, then the heart and then the brain, if there be such an effect resulting from it? Take them up in detail, commencing with the muscle first.

A. The effect of the drug on the muscle, as I say, is to produce rigor, coagulation,—if given in sufficient quantities.

Q. Is that a departure from the normal?

A. Why, certainly. On the central nerves system—

Q. What do you mean by that?

A. I mean the brain and spinal cord. On the spinal cord caffeine produces an effect which is practically identical with strychnine, differing only from it in degree; it takes a larger dose to produce the action.

Q. What is that action that it produces?

A. It increases the sensitiveness of the spinal cord or the impulses coming into it, so that an animal which has taken caffeine or strychnine will go into a spasm if it is stimulated or touched. Oftentimes a breath of air will throw it into a spasm.

Q. Is that or not a departure from normal?

A. Undoubtedly.

Q. Well now, then take the heart, what is its effect physiologically on the heart?

A. The physiological effect on the heart is mostly similar to the effect of digitalis. It increases the force of the heart beat but it differs, however, from digitalis in that it does not slow the heart to the same degree by stimulating the nerve centers that control the heart and its action

on the heart itself is closely allied to that of digitalis, it belongs in the same group of drugs so far as that action is concerned.

Q. Does or not its effect on the heart induce a departure or change from normal?

A. Yes, sir. It increases the rate of the beat and it increases the strength of the beat in small doses.

Q. Well, what do you mean by small doses, Doctor?

A. Well, that is rather an ambiguous expression. That I should not have used, but if you use it in a rabbit or if you use it in a dog, giving an injection of, I should say, from five centigrams to a decigram, you get an effect certainly on the heart, and to my recollection as to the particular dose in that particular—that is not very good,—it has been several years since I have tried experiments of that sort.

Q. That is merely your general recollection?

A. Yes, sir; merely the general recollection.

Q. What is its physiological action or effect of caffeine on the brain?

A. Its effect on the brain—it stimulates higher centers of the brain—those which have to do with intellect and the motor centers also.

Q. Is that or not a departure from normal?

A. Yes, it is.

Q. Have you seen the direct application of this substance to the muscle?

A. Yes, sir.

Q. State what that effect is as compared with the injection of the substance into the blood stream.

A. It has the same effect.

Q. State whether or not after being introduced into the blood stream it is afterwards recovered and isolated.

A. From the muscle, you mean?

Q. Either the muscle or the blood.

A. It has been recovered from both the muscle and the brain.

Q. After an injection into the blood stream?

A. After an injection into the blood stream—after a subcutaneous injection.

Q. Could you conceive of any reason why that would not be so if taken into the mouth?

Mr. Sizer: I object to that.

Mr. Miller: He is competent—he has qualified.

The Court: Ask him the question whether it is his opinion from his experience, from his scientific knowledge, in his opinion it would have the same effect,

BY MR. MILLER.

Q. In your opinion, from your investigation, experience and research and reading, would it have the same effect after being taken in the mouth as if it were injected subcutaneously?

A. Yes, sir; that is my opinion.

Q. In your opinion, if taken by way of the mouth, might it be recovered in the brain or might it be found there?

A. It might be.

Q. Well, state—

A. I was going—

Q. (Interrupting) I beg your pardon?

A. Simply for the sake of fairness I would like to state that I do not know it has ever been.

Q. In your opinion it may be, though?

A. Yes, sir.

Q. Giving a drug without knowing its name, to an animal or animals on which you experiment and observe the physiological action of this drug, state whether or not there are any recognized tasts for determining the name of the drug, and if so, what they are.

A. You mean to determine what the drug is?

Q. Yes.

A. Caffeine can be recognized by the picture it gives in the change of the animal. In the behavior of the animal.

Q. What are some of the tests that would be resorted to, some of the usual and well recognized tests that would be resorted to to determine whether or not it was caffeine, under these conditions?

A. Well, I know of no other drug which produces just this picture of the physical effects which are produced in the muscle, the stimulation of the cord and the stimulation of the higher centers, and the effect on the heart. There are different drugs which produce some of those effects but caffeine is the only one I know of which produces them all.

Q. In teaching pharmacology and physiological chemistry, state whether or not the tests which I have suggested —namely, the giving of a drug without knowledge as to what it is and of observing its effect on animal life, is resorted to for the purpose of teaching what the drug is.

A. Yes. It has been my custom in the instruction of students to give them an unknown drug or drugs and caffeine among them, and make them tell me what it is by the result is produces in animals.

The Court: Unless there is some contradiction of that, you need not introduce any further proof on that.

Mr. Miller: He is the only witness I expected to ask it of.

BY MR. MILLER:

Q. State whether or not you are prepared to say whether or caffeine is a poison, and if so, tell us whether it is or not.

A. In my opinion caffeine is a poison.

Q. Is it or not a food?

A. It is not a food.

Q. If it be shown or if it be true, rather, that caffeine was ground up with a liver of an animal, such as a cow, and also with that of a rabbit, and was afterwards recovered, after the composition had been heated at the temperature described by Doctor Emory before leaving the stand, in your presence, and it was found that 97 to 98 per cent. of it was there yet in the liver, what if anything would that prove?

A. It would prove that the ground up liver had not altered it.

Q. If that would be true in the case of a liver obtained at that temperature, what, if anything, would that prove as to the effect of the liver or the liver on the drug, if it be administered by way of mouth, in human organisms?

A. It does not show anything as regards that. If the experiment had been positive, it would have shown something, but being a negative experiment it does not throw any light on that subject.

Q. Have you seen the analyses as submitted by Doctor Fuller of the composition of Coca-Cola syrup in this case wherein the caffeine is shown to exist at approximately 1.20 or one and one-fifth grains per ounce? I mean, per grain in an ounce of Coca-Cola syrup?

Mr. Sizer: I don't think that question is very clear.

The Court: No.

BY MR. MILLER:

Q. I may have gotten mixed in there—but what I am asking him is whether or not he has seen the analyses filed by Doctor Fuller, which shows the composition of the Coca-Cola syrup, and wherein it is shown that one and one-fifth grains of caffeine is contained in one ounce of Coca-Cola syrup, that is what I meant to ask, whether I did it or not.

A. Yes, sir; I have seen that statement.

Mr. Miller: I will ask leave to pass to the witness for his own reference a transcript of Doctor Fuller's testimony on that point so that he may have it before him.

BY MR. MILLER:

Q. Now. taking the analysis as there given, I will get you to state whether or not the administration of caffeine in the proportion there found—assuming that one and a half to two ounces of the mixture be taken by the average consumer,—would have any effect or physiological action on the consumer, and if so, state what it would be.

A. I believe that it would have an effect on the consumer.

Q. Well, what would that be?

A. Varying under different conditions, according to age.

Q. Well, explain why.

A. Undoubtedly it would; it also would depend somewhat on what a man has been used or been accustomed to taking. It depends upon the age, it depends upon size and state of health, and various other things.

Q. Can you illustrate or tell us why it would depend on the state of health?

A. Simply from my experience as to action of drugs varying in different conditions of health.

Q. If a person be in normal health, would it have as marked physiological action, or rather, as marked physiological effect as if he were below normal health?

Mr. Hirsch: I don't think that Doctor Matthew has attempted to qualify as to that; it would require a practictioner to answer that question.

Mr. Miller: I submit it to him.

The Court: Did those experiments qualify you—there is no dispute about that, that its effects vary owing to the condition of a person's health?

Mr. Hirsch: No, I think not.

BY MR. MILLER:

Q. In what class of individuals would its effects be more noticeable?

The Court: You have proven that many times; I think it is not necessary to prove it unless it is disputed and if it is, then you may introduce other evidence on that point.

BY MR. MILLER:

Q. State whether or not its effects would be more or less marked—take children, state whether or not its effects would be more or less marked than on an adult.

The Court: Until some contrary evidence has been introduced, we will not go into that any further.

Mr. Miller: How was that?

The Court: If they introduce any evidence denying

that, then you may introduce further evidence.

Mr. Miller: They decline to state whether they will deny it or not.

BY MR. MILLER:

Q. Assuming that more than one ounce—I mean a dose, —say, containing from one and a fifth to two and two-fifths grains, would be taken through a day, state whether or not the physiological action which you have described and the effect which you have described, would be proportionately increased or whether it would be decreased.

A. It would be increased, but whether it would be in strict proportion or not I do not know.

Q. Would that or not depend on the length of time?

A. That would depend upon the length of time that elapsed between the doses.

Q. Between the doses?

A. Yes, sir.

Q. Would it or not depend on the elimination, whether er it was slow or rapid?

A. I presume so.

Mr. Miller: That is all.

CROSS-EXAMINATION, MY MR. SIZER:

Q. The fact is, Doctor, caffeine is a substance that is quite rapidly eliminated, is it not?

A. It is a substance that persists for some time in the body before it is completely eliminated.

Q. Well, you mean persists in the body as caffeine for some time, or that that the substance as it is broken up may some of it stay in the body for some time?

A. It has been shown to exist as caffeine.

Q. For how long?

A. For at least two days, after the last dose of caffeine had been given; that is, heavy doses.

Q. That was a good many heavy doses in that case?

A. Yes, sir.

Q. And what experiment is that you refer to that produced that result?

A. There are experiments by Courewitsch.

Q. Do you remember the quantities of caffeine that he gave in order to produce that result, that is, to produce the effect of caffeine in the body at the expiration of two days.

A. He gave very heavy doses. He was studying the way animals became accustomed to caffeine and he began with doses that they could stand and gradually increased the dose so that he was giving more than a fatal dose at the end of the time.

Q. What kind of animal was that he experimented on?

A. He used rabbits.
Q. Used rabbits?
A. Yes, sir.
Q. And how did he feed them, by the mouth or inject it into the veins?
A. That was given subcutaneously.
Q. That was not fed to them at all?
A. No, sir; it was not fed.
Q. Now, getting back to the proposition I asked you a while ago,—is it true as a general proposition that caffeine is eliminated with comparative rapidity—that is, compared with other food substances?
Mr. Miller: He stated the time. Whether it was with comparative rapidity is clearly a matter that is incompetent—he stated the time in which it was excreted and that he said was two days.
The Court: He said that was an extreme case and he is asked about the ordinary case. If the witness thinks the word "comparative" is indefinite, he may qualify it.
Mr. Sizer: I ask it as compared with other foods.
Mr. Miller: I have not been permitted to go into that and compare it with other drugs, and I object to counsel going into this and comparing it with other foods.
The Court: Ask the witness,—the question of the witness is what rapidity it is ordinarily eliminated with, and he may answer it and give the period of time.
Mr. Sizer: I submit I am cross-examining the witness and it seems to me I should be permitted to ask him whether or not it is not eliminated with comparative rapidity.
The Court: You may include the word "comparative" as it is very indefinite and will get us into a large field of questioning.
Mr. Sizer: As compared with other food substances, is it true that as a general rule caffeine is eliminated with rapidity?
Mr. Miller: I object to that question because it is not shown that this is a food substance.
The Court: The question as to whether caffeine is eliminated more rapidly than ordinary food a man takes—that is the question. You may ask the question.
Mr. Miller: That is what I objected to.
The Court: Well, the objection is overruled.
Mr. Miller: I except.
The Witness: I should say that it was eliminated with about the same rapidity.

BY MR. SIZER:

Q. As other foods?

A. Not as other foods; as other drugs.

Q. With about the same rapidity as what, then?

A. Well, as—

Q. (Interrupting.) Salt, for instance?

A. No, I would not undertake to say that salt was eliminated faster or slower—I really cannot recall any specific experiments on that particular point. I am giving you my general impression that it is eliminated with about the same rapidity as morphine, for example.

Q. How about the salt? I asked you if it is eliminated with about the same degree of rapidity as salt would be.

A. It is impossible to answer that question as a physiologist.

Q. Then you have not had sufficient experience with it to be able to answer that question?

A. No, sir, I could not answer that question.

Q. The fact is, is it not, that the extent to which any substance taken into the mouth is eliminated and the rapidity with which it is eliminated, depends very largely on the quantities taken and on the individual?

A. Well, I would like for you to define the word "rapidity." You mean the time it appears in the urine from the time it is taken in the mouth, or the time that elapses before the last trace of it is out of the body?

Q. I mean the time that elapses between the taking of the substance and the elimination of it from the body. I want to know if that does not depend very largely on the quantity taken and the individual who takes it.

A. I do not know of any experiments that have been made settling that point.

Q. Then that is another point you are not able to testify to definiately?

A. I am not able to testify to that definitely.

Q. Now, you do know this, that if large quantities of anything are taken, it takes longer for it to go through the body than for a smaller quantity?

A. Longer for the body to get rid of the last trace of it.

Q. So it does take longer to get through if you take a greater than if you take a smaller quantity?

A. For all of it to get through.

Q. You speak about the effect of caffeine on children. The fact is that caffeine is a xanthine-producing body?

The Court: There is no question about that.

Mr. Sizer: I want to get him to say he knows that.

BY MR. SIZER:

Q. Do you know that to be a fact?

A. That caffeine is a xanthine body itself.

Q. Children get with their normal food certain other xanthine-producing bodies. Is it not a fact that milk is a xanthine-producing body?

A. Xanthine bases or produced in the body from a great variety of proteins.

Q. Confine ourselves to milk, the diet of small children. Is it not a fact that milk is a xanthine, or a xanthine-producing body?

A. Any protein substance is a xanthine-producing body.

Q. Is milk?

A. Milk is a protein substance.

Q. Then milk is a xanthine producing body?

A. Yes, sir; it makes xanthine.

Q. It makes them out of certain kinds of food?

A. Out of protein.

Q. Out of many kinds of food.

A. Out of all protein food.

Q. Now, if children get xanthine in their milk and should also take an additional quantity of xanthine in the shape of coffee, they might get too much?

A. The xanthine in their tea and coffee is trimethylxanthine. The methylated xanthine are not produced in the body ordinarily. The trimethylxanthines in milk are broken up and demethylated in part.

Q. Reduced to xanthines?

A. No, sir; I don't believe it is. I have not been able to find any clear-cut evidence of that fact. There may be such evidence but I have not been able to find it myself.

Q. Didn't you testify in your deposition in this case in Chicago, Professor Matthews, that caffeine was broken up and oxydized and demethylated in the body into xanthines?

A. I don't remember whether I made that statement. My recollection is I said it was oxydized and broken up into a xanthine body. If you will read my statement I can tell whether I said it or not but I don't remember that.

Q. Do you say now it is or is not converted into xanthines?

A. I have tried to find some clear-cut evidence that it was made into xanthines since you questioned me on the subject and I have not been able to find it.

Q. You have not been able to find whether it is or is not made into xanthines?

A. No, sir.

Q. So what you say now is you don't know whether caffeine is broken up into xanthines or not?

A. No, sir, I have not been able to find any decisive proof that it is or is not, one way or the other.

Q. Now, xanthine, as you testified in your deposition in Chicago, is one of the normal constituents of the human body?

A. Yes, sir.

Q. It is found in nearly all the cells?

A. I do not know about that.

Q. It is found in the nucleus cells?

A. Not xanthine.

Q. It is not?

Q. At any rate, it is found in the body?

A. Yes, sir.

Q. You say it is not a food?

A. Speaking of caffeine?

Q. Yes.

A. No, sir, it is not a food.

Q. It does result in the production of energy by its demethylization in the body?

A. I do not know that it is by its demethylization but by its oxidation it certainly would liberate more energy.

Q. Oxidation of caffeine in the body results in the production of energy?

A. Yes, sir.

Q. And the production of energy is one of the functions of a food?

A. No, sir. I do not agree with you there.

Q. Well, didn't you say so in your Chicago deposition?

A. Yes, sir, I said so, but its getting into such a ridiculous statement made me think over it because on that basis morphine would also be a food. So it is evident that the definition is wrong, that it enables us to classify morphine as a food, which reduces it to an absurdity.

Q. Didn't you say this in your Chicago deposition?

The Court: He says he did.

A. I said it was a food to that extent, that it produced energy.

BY MR. SIZER:

Q. The production of energy is one of the functions of food?

A. Of some foods, to some extent.

Q. Of most foods?

A. There is one fundamental thing in a food that has to be. It has to be the raw material out of which the body makes itself, that is a food; it may in addition contribute some to the energy of the body but the essential thing is that it is the raw material out of which the body is made.

Q. Suppose in addition to being a material out of which the body is made, that it prevents the waste of tis-

sue; is not that one of the functions of food?

A. No.

Q. It is not that one definition of a food substance?

A. It may be. There is a great deal of uncertainty about the definition of food, but this definition I have given seems to be the best one.

The Court: Is that definition made up from your reading or is it from your experience?

The Witness: It is my definition.

The Court: Then you cannot read your definitions from the books, Mr. Sizer.

Mr. Sizer: I want to read these definitions——

The Court: If his opinion is not the result of scientific reading, it is not competent for you to read a definition contradicting him. The witness has expressed an opinion as the result of his own experiments and not from reading other works.

BY MR. SIZER:

Q. The purpose of taking food is to replace waste tissues?

A. Yes, sir.

Q. The waste tissues are due to the expenditure of energy?

A. Due to decomposition of substance.

Q. That follows from the expenditure of energy?

A. It results in the expenditure of energy.

Q. And you have to take food in order to keep up the equilibrium and replace the tissue-waste produced by the expenditure of energy?

A. By the decomposition of substances in the cells energy is set free and these substances are wasted and you have to replace them.

Q. And if you get a substance that enables you to expend a certain amount of energy with less effort, does not that class as a food?

A. No, sir.

Q. Why not?

A. Not on my definition.

Q. I am trying to convince you your definition is not a sound one.

The Court: I do not see how the question of whether this witness' definition is sound or not, is important. This case does not involve a definition of the word "food." If it did, the Court would instruct the jury as to what the word means.

BY MR. SIZER:

Q. Is starch a food under your definition?

A. Yes, sir.

Q. Does it build up the body?
A. Yes, sir.
Q. In what way?
A. It forms glucose which is built into the tissues of the body. It is derived from one of the substances from which living matter is made.
Q. Now, you are quite a considerable consumer of caffeine yourself, are you not?
A. I was at the time I testified in Chicago.
Q. At that time you took four or five cups of coffee a day?
A. I took two cups of coffee and two or three cups of tea.
Q. About four or five cups of tea and coffee combined, a day?
A. Yes, sir.
Q. From eight to nine grains of caffeine?
A. It was a considerable quantity.
Q. And you have been doing that for a number of years?
A. Just at that time I was taking more than usual but I have been taking very considerable quantities for a number of years—yes.
Q. Did you not testify in that deposition that you had been taking that same quantity daily for a number of years past?
A. Yes, sir; that was the case.
Q. And since then?
A. Yes, sir; I cut it down.
Q. When did you cut it down?
A. Your questions on the subject set me to thinking and my reading aroused by doubt, besides.
Q. And so I persuaded you that you had better quit it?
A. You did not persuade me but you set me to thinking about it. I knew that periodically I had to give it up.
Q. You are an expert chemist and knew all about those things and it never occurred to you that you ought to give it up, until your deposition was taken?
A. I knew that periodically I had to give it up. I would get too nervous.
Q. How much do you take now?
A. Just one cup of coffee.
Q. Just once a day?
A. Yes, sir.
Q. How long have you been keeping that up?
A. I think I began that the day after your examination.
Q. You just take one cup now?
A. Yes, sir.

Q. You testified, I believe, that caffeine passes through the system and through the urine as caffeine?

A. In part it does.

Q. In what part.

A. A small per cent.

Q. A very small per cent., is it not?

A. Yes, sir; a small per cent.

Q. Do you testify to that from experience or from reading?

A. From reading.

Q. You have made no experiments to ascertain for yourself how that is?

A. No, sir.

Q. Is it not a fact that even in small quantities caffeine will not pass through and appear in the urine unless large quantities are taken?

A. No, sir; I could not say that it would not appear.

Q. But you could not say that it would or would not?

A. No, sir; I could not say as to that.

Q. The only experiments you have conducted were experiments with animals, is not that true—I mean, as to caffeine?

A. Yes, sir; except my observation of myself.

Q. When you drank four or five cups of coffee and tea a day?

A. Yes, sir.

Q. What animals did you experiment on?

A. Frogs, dogs and rabbits.

Q. By subcutaneous injection in each case?

A. Sometimes we put an intravenous injection.

Q. In each case it was taken by the mouth?

A. It was not taken by the mouth.

Q. Was it pure caffeine or some mixture?

A. It was caffeine for the most part.

Q. In all cases, was it caffeine?

A. No, sir; sometimes we used a salt of caffeine.

Q. What kind of a salt?

A. Citrate or hydrochloride.

Q. The citrate of caffeine is not a salt at all?

A. Yes, sir, it is a salt.

Q. Is it not a mixture of citric acid and caffeine, not a chemical compound?

A. No, sir.

Q. You used the citrate of caffeine?

A. Yes, sir.

Q. Not a chemical compound—was it a chemical compound?

A. I regarded it as such.

Q. Now, do you know whether it is a chemical compound or whether it is simply a mixture of the two pure substances, caffeine and citric acid?

A. It is generally recorded as a loose combination. The fact that its solubility—that the caffeine's solubility so strongly alters the basic properties of caffeine, indicates that it is a chemical compound.

Q. Are you prepared to express a positive opinion as to whether the citrate of caffeine is a chemical combination or simply a mixture of citric acid and caffeine?

A. My opinion is that it is a combination, but I never particularly examined the matter.

Q. In fact, you cannot say positively whether it is or is not, can you?

A. No, sir; I do not know that I want to make a positive statement on that question.

Q. Did you ever make any experiments on yourself to find out whether eight or nine grains of caffeine that you were taking in the form of tea and coffee, passed through your body and appeared in the urine?

A. No, sir; I have never examined that.

Q. You never examined it with any human being?

A. No, sir.

Q. Did you express the opinion on your examination in chief that caffeine had the effect of coagulating the muscles of the human body?

A. The question was asked by the attorney in a very awkward way—begging his pardon for stating it that way.

Mr. Miller: I take the blame if it was on me.

The Witness: I didn't intend to state it in just that way.

BY MR. SIZER:

Q. You did not intend to state that?

A. No, sir.

Q. If caffeine produces any coagulation, it is so small you cannot notice it?

A. In the human body?

Q. In the human body.

A. In the human body they will be killed by the action of the caffeine on other parts of the body before the muscular action showed itself.

Q. The question ask you is, is it not true that coagulation of the muscles is not produced in human beings by the use of caffeine?

A. I do not know of any case that it has been shown to have been so produced.

Q. Then so far as your knowledge and expert opinion goes, it is not so produced?

A. No; my opinion is that in human beings it will not be produced under ordinary conditions of administration.

Q. A great many substances will produce coagulation of the muscles when brought in contact with them that will not produce that effect when taken through the mouth?

A. It happens that the muscles ordinarily are more resistant, and you kill an animal by the action of the drug on the central nervous system before you get enough to the muscle to produce the effect on the muscle.

Q. For instance, if you apply distilled water to an exposed muscle, it would produce coagulation?

A. Yes, sir.

Q. It would not if you took it by way of mouth?

A. No, sir.

Q. What was that you said in your direct examination about a breath of air throwing an animal which had taken caffeine, into a spasm?

A. I thought when I said that that it would have been better to have left it out.

Q. Rather an extreme statement?

A. It is a statement that is made in the textbooks that has gotten into my head and in that way came out.

Q. That is an extreme statement?

A. Rather extreme.

Q. In reply to the question as to whether caffeine was a poison, your definition of a poison embraces a good many substances, does it not?

A. Yes, sir.

Q. For instance, spices, pepper, cane sugar, chocolate, are all poisons according to your definitions?

A. No, sir.

Q. Didn't you so testify in your definition in Chicago?

A. No, sir.

Mr. Miller: I object to that. He is giving his definition now.

Mr. Sizer: He has not given any definition here.

The Court: I do not recall that he has given any definition of a poison. You may ask him for his definition.

BY MR. SIZER:

Q. Didn't you testify in your deposition in Chicago that spices and pepper and ginger were also poisons?

A. No, sir. I can tell you what I did testify to, if you desire me to. I stated that they contained a toxic principle.

Q. Now, didn't you say that a poison was any substance which was not normally contained in the body?

A. Which acted upon it chemically.

Q. Didn't you say that pepper was not a normal constituent of the body?

A. I do not remember whether you asked that particular question.

Q. Do you say now that pepper is a normal constituent of the body?

A. No, sir.

Q. Then is it a poison?

A. No, sir.

Q. Then your definition is not correct?

A. It contains a toxic principle. Pepper is not a chemical individual.

Q. You say pepper is not a chemical?

A. It is not a chemical individual.

Q. What do you mean by chemical individual?

A. I mean a chemical compound, so-called, in the ordinary sense.

Q. You say that pepper is not a chemical compound?

A. No, sir.

Q. Is it a drug?

A. Yes. I presume it would be called a drug.

Q. To come to your definition of a poison again, arsenic is a normal constituent of the human body?

A. It is—it has, I believe, been found in the human organs.

Q. It is found in the nails and various other parts of the body?

A. It has been found there.

Q. It is a normal constituent of the body?

A. A good many things are found there that ought not to be there.

Q. Don't you know that arsenic is one of the necessary constituents of the nails and certain other parts of the body?

A. No, sir.

Q. And of the hair?

A. No, sir, I do not know that.

Q. You do not know that?

A. No, sir.

Q. Do you know whether that is true or not?

A. I believe that it is the case that small quantities are found.

Q. Would you say arsenic is not a poison?

A. No, sir.

Q. So that your definition of a poison does not cover all poisons and it does cover some things that are not poisonous?

A. It cannot cover anything that is not a poison, but there are some things left out that under another definition might be called poisons.

Q. Do you mean to say that everything that contains a toxic principle in any quantity is a poison?

A. It contains a toxic principle.

Q. And is that a poison, do you say?

A. No, sir. A toxic principle is a poison, though.

Q. But every substance that contains a toxic principle is not necessarily a poison?

A. It contains a poison.

Q. Is it itself a poison?

A. No, sir.

Q. A great many substances given as articles of diet contain toxic principles?

A. Some of them do, certainly.

Q. For instance, acetic acid is a toxic principle, is it not?

A. Under my definition acetic acid was excluded as a poison.

Q. It would not take much of it to kill a man, would it?

A. I could not say as to that. It would take considerable, I think—it would depend on the dilution.

Q. Why do you say it was excluded under your definition?

A. I excluded it because acetic acid is found in so many organs of the body.

Q. And because it is found in some organs of the body, although a small quantity of it would produce death, you say it is not a poison?

A. A small quantity would not produce death.

Q. How much does it take?

A. I don't know.

Q. How do you know that a small quantity won't?

A. You can take a considerable quantity of vinegar and not produce death.

Q. How about hydrochloric acid?

A. What do you mean?

Q. Is that a poison?

A. Hydrochloric acid is a poison,—under my definition it would not be a poison if it could be shown to be a normal constituent of the cells of the body.

Q. As an expert, I ask you is hydrochloric acid a poison or not?

A. Under that definition if you can show it is a normal constituent of the cells of the body, it would not be a poison.

Q. I am not undertaking to show you. I want you

to show me. Do you say as an expert that hydrochloric acid is or is not a poison?

A. I say I do not know whether hydrochloric acid is or is not found in small amounts in the cells of the body.

Q. It is formed in the body?

A. It is a normal secretion from the mucous membranes of the stomach.

Q. How much hydrochloric acid would it take to kill a man.

A. I don't know.

Q. A very small amount?

A. I could not say as to that.

Q. You say acetic acid is a normal constituent of the body?

A. Yes, sir. Acetic acid I believe to be a normal constituent of the body.

Q. How does it appear and where?

A. It is found in all the tissues and cells of the body, or the monoderivative is.

Q. The derivative is found, but the acetic acid is not found?

A. There are always found in the cells a substance that will strip off the monogroups and set free the acetic acid.

Q. Are you familiar with the substance theobromine?

A. No, sir; I am not famiilar with theobromine.

Q. That is very closely allied to caffeine, is it not?

A. Yes, sir.

Q. It is an alkaloid found in chocolate, is it not?

A. Yes, sir.

Q. And in cocoa?

A. Yes, sir.

Mr. Miller: I submit that was excluded and I object to it:

Mr. Sizer: Your Honor said we could not inquire about theobromine until we showed its connection with caffeine. We have shown it by this witness.

The Court: This witness says he is not familiar with it.

Mr. Sizer: He says it is closely allied to caffeine.

The Court: That may be true and yet he may not be familiar with it.

BY MR. SIZER:

Q. Do you know whether caffeine is found in chocolate?

A. My recollection is that there is a small amount of caffeine in it.

Q. To refresh your recollection, is it not true that there is 28/100ths of one per cent. in chocolate as used as a beverage?

A. I have not looked the matter up.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. When you speak of a toxic principle contained in certain food, what do you mean?

A. I mean that it is a substance that produces deleterious effects and which is not found normally in the cells.

Q. How if at all is that extracted and converted into what we term a poison?

A. I am using the word really in the sense of a poison.

Q. What is the toxic principle in pepper about which you were asked?

A. I had in mind pepperedeen,—p-e-p-p-e-r-e-d-e-e-n.

Q. Pepperine?

Mr. Sizer: I would like for Mr. Miller not to lead the witness.

The Court: The objection is sustained.

Mr. Miller: I am trying to ascertain whether it is the difference in pronunciation.

Mr. Sizer: Let him spell it and we will find out.

Mr. Miller: I asked the witness to spell it.

The Witness: I call it pepperedeen.

BY MR. MILLER:

Q. Spell the substance you think is the toxic principle of pepper.

A. I suppose it was pepperedeen, but I may be wrong in that matter. I am not very familiar with that particular subject.

Mr. Miller: Do you gentlemen want it spelled or not?

Mr. Sizer: We don't care.

BY MR. MILLER:

Q. According to that statement made by textwriters that after a frog had been given caffeine, a breath of wind blown against him might throw him into a spasm, you say that statement was perhaps an extreme statement. Now, I will ask you to state whether or not in that connection from your experiments, matters which under normal conditions would not drive a frog into that condition, would precipitate that action after he had received caffeine?

A. Oh, yes; certainly.

Q. Can you give us an example of some instance that would produce that effect?

A. Any jar or touching the animal might throw him into a spasm.

Q. What is the reason for the breaking up of the caf-

feine after it enters the body, or the demethylization of it as it is termed, Professor Matthews?

A. I beg your pardon?

Q. I say, what is the reason or the occasion for the breaking up process of caffeine after it enters the body?

A. That is a question that we do not ask in physiology.

Q. Do you know or are you prepared to say that is nature's effort to throw off the caffeine?

Mr. Sizer: He has already said he did not know, that that is not a question that comes up in his expert experience and I submit that this question is not competent.

Mr. Miller: I don't think he said so.

Mr. Sizer: Read his answer then.

The Court: I don't think his opinion would be competent on that.

Mr. Miller: Note an exception. I called for his opinion on the point and I submit it is competent.

The Court: I do not think it is a question of expert knowledge.

BY MR. MILLER:

Q. Are there any xanthine bodies in our food in a pure state that you recall?

A. You mean to say, do we get any xanthine bodies in our food?

Q. I don't mean that, but I mean if we get any free or pure xanthine, in the xanthine form?

A. I presume we get a small amount in our meat.

Q. Is that free or in combination?

A. That is free, presumably.

What functions do they perform after entering the body?

A. I beg pardon?

Q. What purpose does it serve after it enters the body?

A. As far as I know it does not serve any purpose.

Q. State whether or not there are certain, what are termed "waste-products," in the body as the result of foods.

A. Certainly.

Q. Does or not xanthine belong to that class?

A. Xanthine is such a body.

Q. Now, as to the production of energy. State whether or not such substances as alcohol and cocaine and morphine produce energy after taken into the body, or liberate energy.

A. Alcohol and morphine do. I do not remember about cocaine.

Q. What was the effect of this taking of coffee and tea on you in the consumption in which you used it—you say you did take quantities up to the time of your exami-

nation some months ago, now what was the effect on you?

A. I was decidedly nervous. That may have been simply one of the contribuative causes to it, however.

Q. What, if any, were the observable effects that convinced you you would periodically have to give it up?

A. Nervousness.

A. Are you prepared to state that that condition which is described as nervousness, is deleterious or beneficial to human health?

A. It is very disagreeable to the person who has it.

Q. Is it beneficial to health or otherwise?

A. No, I should say it was detrimental. It is a condition of un-health in itself.

Q. State whether or not these departures from the normal in the muscles, heart, brain and the spinal cord, which you have described, would influence the health of a person, and if so, in what respect.

Mr. Hirsch: That has been ruled out once, not quite in that form. It is calling for the conclusion of the witness. He has stated what it would cause, and the jury can pass on the rest of it.

The Court: I only ruled on the question of the witness applying epithets. I have not ruled on the question now presented, which is, what would be the effect on the general health of a person.

Mr. Miller: Yes, that is the question.

The Court: And that is a different question and I overrule the objection.

Mr. Hirsch: Give us an exception.

BY MR. MILLER:

Q. What would be the effect on the health in cases of departure from the normal, as you have described it, might result from the use of caffeine?

A. Repeat that question again.

(The question was read by the stenographer as follows: "Q. What would be the effect on the health in cases of departure from the normal, as you have described it, that might result from the use of caffeine?")

A. That question is not clear to me.

Q. I will try to make it clearer. I understood you to tell, to state, what would be the effect on certain functions, namely the muscles, the heart, the brain, and the spinal cord, of a consumer of caffeine.

Mr. Sizer: That has already been fully gone into on the examination in chief, and the witness has stated the effect on each of those organs.

Mr. Miller: That is true.

The Court: The object is to ask the witness what would be the effect on the general health of a person.

Mr. Sizer: That was the first question and the witness said he could not answer.

The Court: I do not recall that he has been asked that.

Mr. Sizer: Mr. Miller asked him and he said he could not answer, then Mr. Miller put it in a short or separated form.

Mr. Miller: No, sir; he convicted me of not making myself clearly understood.

The Court: Go on.

BY MR. MILLER:

Q. Now, I will ask, assuming those normal departures you describe resulted from the use of caffeine, and assuming that from the use of caffeine there is a departure from the normal, in the case of those four organs, what would be the resultant effect on human health?

A. It would be detrimental.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. I believe you say the only experience you have had with the use of caffeine, so far as the human being is concerned, is in the form of tea and coffee?

A. Yes, sir.

Q. Is it not a fact that it is a much-disputed question in medical literature as to the effects of tea and coffee on the health?

There is certainly some difference of opinion about it.

Q. I want to read you from Hutchinson on Food and Dietetics and assume if this is true——

Mr. Miller: We object to the reading. I object unless we are allowed to read from the same work. I submit this witness is not basing his opinion on the reading of medical literature in the first place, and in the next place, your Honor has ruled that we shall not be permitted to refer to that.

The Court: That is not involved in this matter.

Mr. Miller: I am making the objection in view of that ruling.

The Court: This question is entirely different. You object to this because he has not expressed an opinion as to the scientific works.

Mr. Miller: Based on medical literature.

The Court: I think this witness has stated that there is a difference of opinion on that question, and I think it is not proper to interrogate him as to these expert writers

who have one opinion as against another opinion. The witness has practically stated that there is a difference of opinion.

BY MR. SIZER:

Q. Is not this true, that all the works on food and dietetics hold the most that can be said against the use of tea and coffee is that nervous people ought not to use it to excess—is not that true.

Mr. Miller: I object to that because in the first place that don't contradict the witness, and in the second place, he has not based his opinion, as given here, on any of the text writers on that subject, and it has not been limited to that.

Mr. Sizer: I am asking that——

Mr. Miller: (Interrupting.) Assuming that authorities state that, which I do not concede, that would not impeach him.

Mr. Sizer: I am not impeaching him. I don't have to ask questions all the time to impeach him.

The Court: So far as doing that, it is really direct examination in the line of cross-examination, bring out new matter, attempting to suport it by a satement of what the authorities say.

Mr. Miller: Our testimony was as to his observations and he has given an opinion based on that, and now they propose to ask him about some medical writer, if he didn't say something.

Mr. Sizer: I submit that the witness has based his opinion as much on reading as on personal experience as he has stated he based his experience on what he read.

Mr. Miller: That may be true as to tea and coffee, but not as to caffeine.

Mr. Sizer: He says he don't know anything about caffeine except as in tea and coffee.

The Court: What is the precise question.

Mr. Sizer: If the literature don't hold that as to tea and coffee, nervous people should use them sparingly.

The Court: What does that contradict?

Mr. Sizer: It don't contradict him but limits his testimony, and he said he bases his testimony largely on literature.

The Court: Testimony as to what?

Mr. Sizer: As to tea and coffee.

The Court: He has not made any statements as to tea and coffee, its effect on general health. He has made a statement as to caffeine. Then he made one statement that it would be detrimental to health, that he has found that in his experience. That is all I recall.

Mr. Sizer: But on cross-examination he said all his experience as to caffeine was limited to tea and coffee, and now I ask him a question as to what the literature says as to the effect of tea and coffee.

The Court: I don't think this witness has attempted to give any opinion from any text writers based on reading as to the effect of tea and coffee on the human system. I do not recall it and I exclude the question.

Mr. Sizer: He has only stated indirectly, but if your Honor rules that way, I do not care to pursue the testimony further. He did state all he knew about caffeine was from his own experience with tea and coffee.

BY MR. SIZER:

Q. Now, you speak of some animal that had taken caffeine and was driven into a spasm under certain conditions?

A. Yes, sir.

Q. That was an animal into which you had injected caffeine?

A. Sub-cutaneously.

Q. You say you do not know whether xanthine has any function in the body?

A. I do not know whether it has or not.

Q. Is it not recognized in the literature as a stimulant mostly?

A. There are statements in the literature that it acts on the muscles.

Q. Acts as a muscle stimulant; is not that true?

A. I do not recall seeing the word "stimulant" used in that connection.

Q. If it acts on the muscle, it stimulates them, would not that be the natural assumtion?

A. Well, its action is one of coagulation, so far as I have seen the statement in the literature.

Q. You have stated that don't apply to a human being, the coagulation of muscles?

A. No, sir. I stated that it probably would not be possible to inject a sufficient amount of caffeine into a human being to produce muscle coagulation, because you would kill the person first.

Q. Now, is it not true that xanthine, as found in the human body, does act as a muscle stimulant?

A. It may so act.

Q. You do not know whether it does or not?

A. I do not know whether it does or not.

Q. If it does so act, that would be a stimulant—a function?

A. Yes, sir; that would be a normal stimulant of the muscles if it acted that way.

Q. Caffeine produces xanthine, or is broken up into xanthine in the body, among other things?

A. I have already replied as to that.

Q. That you do not know whether that is true or not?

A. That I have not been able to satisfy myself on that.

(Witness Excused).

W. McQUILLEN,

the next witness produced on behalf of the United States, of lawful age, first duly sworn was examined in chief and testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Where do you reside?

A. Chattanooga.

Q. How long have you resided in Chattanooga, Tennessee?

A. Nearly fourteen years.

Q. What is your profession?

A. Physician.

Q. Are you a licensed practitioner in the state of Tennessee?

A. Yes, sir.

Q. What has been your experience as a practitioner of medicine?

A. An experience extending over some twenty-seven years.

Q. Where were you educated and where did you receive your degree?

A. I graduated in the University of Dublin, Trinity College, Ireland.

Q. Then, where else?

A. After that I studied about eight months in Paris and then about two years in Germany and in Vienna, Austria.

A. Are you a member of the Medical Association of the State of Tennessee?

A. Yes, sir.

Q. Are you a specialist in any character of disease, if so, what?

A. I have made a special study of nervous diseases.

Q. Can you explain to us by what is meant by so-called nerve stimulations?

A. There are many forms of stimulation. A stimulant is originally something that puts a thing on action, and so would excite some of the nerve vessels, and would excite

some of the mechanical vessels—it might be divided into a great many things.

Q. State how long you have been a specialist in nervous diseases or disorders.

A. I have made a specialty of that the last ten or twelve years.

Q. Did you hear the testimony of Dr. Formad on yesterday morning?

A. Yes, sir.

Q. Did you hear what he said with respect to what he termed chromotolysi?

A. Yes, sir.

Q. I will ask you whether this condition of chromotolysi is found in any form of nerve disease and if so, what?

A. It is found in many examinations where there are pathological lesions of a nerve.

Q. Can you instance some form of nerve trouble or disease where it is found.

A. Myalitis.

Q. What is that?

A. Inflamation of the spinal cord.

Q. Any other?

A. Polio myalitis.

Q. What is that?

A. An acute affection of the gray matter of the interior cornea of the spinal cord.

Q. Any other?

A. I expect there are a good many others but I won't be positive about that. I know of those two and I think it might occur as the result of pathology or invasion of the system by any pathogenic bacterior or poison.

Q. State whether or not you have treated any patients who were affected by the use of Coca-Cola, about October, 1909, imediately subsequent or prior to that time, here in Chattanooga.

A. I have observed in several cases the effects of Coca-Cola on patients.

Q. What were the observable effects?

A. Where it was taken in excessive quantities, it produced nervousness, loss of power—the retentive faculties, sleeplessness, gastro-intestinal disturbances, arhyphmia, irregularity of the heart.

Q. As respects this term of excessive quantities, I pass you the analysis of Coca-Cola syrup, as made by Dr. Fuller, and I ask you to note that, and state whether or not the amount of caffeine, as there shown, in your opinion, might or would produce symptoms in individual cases of

consumers, where they have taken from one to two ounces of the mixture?

A. Yes, sir, I think it might.

Q. On what would the observable symptoms depend? If they would be affected by any other condition, tell what.

A. Repeat that question, I did not catch it.

Q. If the observable symptoms would be intensified or decrease as the result of any other condition of health, or anything of that kind, tell what the effects would be as to intensification or increase?

A. If the patient were already suffering from nervousness, it would of course be intensified by that, or if they were young.

Q. What about the affections of the heart?

A. Certain affections of the heart might be more influenced.

Q. Would or not these results that you have described that might attend the consumers of Coca-Cola affect human health and if so, how—I mean to say injuriously or beneficially?

A. Well, if the patient were just in a condition that a dose of caffeine would be indicated in his case, he might go in and get the Coca-Cola and that might be prescribing for himself and it might be of some benefit in that case, but I would think in most cases of nervous temperament, it would be deleterious.

Q. Is caffeine or not sometimes prescribed as a drug?

A. It is prescribed as a drug.

Q. For what forms of trouble?

A. It is prescribed frequently in arhythmia, irregularity of the heart.

Q. State whether or not during the year 1909, and during October, or sometime prior thereto, you had occasion to observe the sale and distribution of Coca-Cola in Chattanooga?

A. Yes, sir, I see it daily.

Q. At what places is it sold and dispensed?

A. I have seen it in the drug stores and at the soda water fountains.

Q. Was it sold at that time at the drinking fountains of Chattanooga?

A. As well as I remember, yes sir.

The Court: It was generally sold throughout the city. There is no denial of that.

BY MR. MILLER:

Q. State whether or not there was any discrimination in the selling of it in this city at that time or at any time.

The Court: That has been proven and it is not denied.

Mr. Miller: I knew it was as to other territory.

The Court: This particular town is like any other town.

Mr. Miler: Then I withdraw the question.

Q. I will get you to state whether or not you have had occasion to observe the manner in which it was dispensed when called for at these drinking places, and how it was dispensed.

A. Sometimes I think there was perhaps an ounce in it—perhaps; variable quantities appear to have been dispensed in the glasses.

Q. State whether or not you observed as to its consumption by children.

A. I have noticed children taking it.

The Court: There is no dispute about that, Mr. Miller.

Mr. Miller: There was a great effort to dispute that in the testimony originally.

The Court: Until it is disputed you need not go into that.

Mr. Sizer: What was that?

Mr. Miller: Is there any dispute about children taking Coca-Cola?

The Court: Yes; if there is no dispute you need not go further into that.

Mr. Sizer: We say they can get it if they want it, but as a general rule they do not care for it.

Mr. Miller: I am trying to show they do take it and care for it by this witness.

The Court: You are trying to prove the general fact that Coca-Cola is sold without restriction to adults and children. That has been proven repeatedly. If you want to show to what extent children drink it, differing from that general custom, you may go into that.

Mr. Miller: That is what I desire to show.

BY MR. MILLER:

Q. I will ask you whether or not you had occasion to pass fountains and attend at fountains, baseball games and other places where children congregated here in Chattanooga, during the year 1909, and immediately prior and subsequent to October, and if you had opportunity to observe, to what extent was Coca-Cola called for and consumed by children.

A. As far as that is concerned I could not say—it was served to children. I have known them from ten to twelve years of age and seen them take it.

Q. To what extent as compared to other drinks taken

by children?

A. I am not prepared to make a statistical report as to that.

Q. Was that consumption large or small relatively?

A. I have known children to take two and three drinks a day, in a day.

Q. What is the effect of Coca-Cola on you, Doctor?

A. It makes me restless and nervous to take it in the evening; sleeplessness.

Q. How much do you say you weigh?

A. About 220 pounds.

Q. What is your age?

A. Fifty-three.

Q. Now, you say it makes you restless during the evening. State whether or not that prevents sleep.

A. Yes, sir; it prevents sleep, if I take enough of it.

Q. What is the effect of that on human health, sleeplessness?

A. Well, there is no restoration of the nervous force where there is an interruption of sleep; it is bad for the recuperative forces.

Q. Is that beneficial or detrimental to health?

A. Detrimental, I would say.

Q. State, Doctor McQuillan, if you have had occasion to observe the incoming street cars of a morning when the shop girls and the clerks and the working classes come in on the cars from their residences and alight near the drug stores in Chattanooga.

A. Yes, sir; I have.

Q. State what is the relative popularity of this drink known as Coca-Cola at the fountain on such occasions.

A. I can't give the real statistics, but everybody knows who sees, that it is a matter of—

Mr. Sizer: Now, I object to what everybody knows.

BY MR. MILLER:

Q. Tell what you know and do not tell what others know.

A. As far as I can see it is a very popular drink, and a great many or a large proportion of the orders are for Coca-Cola.

Mr. Miller: You may cross-examine him.

CROSS-EXAMINATION, BY MR. SIZER:

Q. Doctor, you say you are a nerve specialist?

A. I have made a special study of diseases.

Q. As the result of the study of nervous diseases which you have made, you have reached the conclusion that 99 per

cent. of the human race are insane, have you not?

A. I never made that statement.

Q. Did you ever make a statement on the witness stand in court as to the percentage of the human race that were insane or non compos mentis?

A. I will give you the statement I made, if you want it.

Q. Well, all right.

A. The statement I made was—I was asked how many people were in perfect health and perfect mental equilibrium, and I stated: "If you took perfect health and perfect mentality, not over five per cent. that would be in perfect health," that was the idea I tried to convey.

Q. That is, that only five per cent. were in good condition and 95 per cent. were not?

A. I said perfect, I was not talking anything about being in good condition.

Q. You meant mentally or physically?

A. I said mentally and physically together.

Q. And you expressed an opinion that mentally and physically, not more than five per cent. of them were in perfect health?

The Court: That is enough.

BY MR. SIZER:

Q. Are you a member of the local medical society?

A. Yes, sir.

Q. Was there ever a time that you were not?

A. Yes, sir; there was a time when I was not.

Q. There was a time when you were expelled?

A. Yes, sir.

Mr. Miller: I do not see the materiality of that.

The Court: I think he can ask that.

BY MR. SIZER:

Q. The fact is, Doctor, that at one time you were a follower of the tenets of one Dr. H. Gibson O'Neil?

A. The fact is, sir; I was not; I was making observations upon the use of light.

Q. The fact is you were the manager of Gibson O'Neil's local establishment?

A. No, sir; I was not.

Q. You were not?

A. No, sir. You are totally misinformed upon that subject.

Q. Were you in charge of that establishment as an examiner?

A. Yes, sir; I examined some of the patients that came there.

Q. Then you had charge of the local establishment?
A. No, sir.
Q. Who was in charge of it when Doctor O'Neil was gone?
A. I think some others—I don't know who, to examine patients.
Q. You turned the light on them?
A. No, sir.
Q. Well, who turned the light on them?
A. I don't know, sir.
The Court: That is immaterial.
Mr. Sizer: We want to get at the principles of that O'Neil clinic.
The Witness: All right.

BY MR. SIZER:

Q. Doctor O'Neil had an idea that you could cure a man of disease by putting him in a cabinet and shining a light on him?
A. Well, I don't know.
The Court: Just get Dr. McQuillan's ideas.
Mr. Sizer: I wanted to show that he was a follower of Doctor O'Neil.
Mr. Miller: He said he was not.

BY MR. SIZER:

Q. That was the principle or the idea of the cure, the theory of the cure, was it?
A. I did not understand that.
Q. By shining a light on a man, that you could cure him of a disease?
A. Well, for the last 25 years, especially in Germany and in Paris, there have been a great many observations by exposure of the human body to light. And there have been a number of observations in this country, and they have been used in this country, the electric light application to the human body, for the last twenty or thirty years.
Q. I say that is the theory of the cure?
A. I don't say that is any theory of a cure.
Q. That you could cure a man by shining a light on him, the color of the light being varied according to the nature of the disease?
A. No, sir.
Q. Didn't you shine a red light on him for certain disease?
A. No, sir.
Q. And a violet light for certain things?
A. No, sir.

Q. How is that?

A. His theory was that the two colors have practical benefit which is a perfectly scientific idea. He thought that the green light and the red light were particularly beneficial in some kinds of diseases, but I did not—

Q. I say, the man that established that school of medicine in Chattanooga, you were a member of that school?

A. He didn't establish any school of medicine because it was not the original idea with him.

Q. Well, he had a sanitarium or place down here where he treated people?

A. Yes, sir.

Q. And you were there in that place?

A. I was there observing the experiments he was making.

Q. And you were examining the patients as they came in?

A. Yes, sir; for a while, not all the time.

Q. Didn't you prescribe whether a red light or a green light or a violet light should shine on a man?

A. That merely exists in your imagination; I never did any such a thing.

Q. Did you ever shine a light on a patient, Doctor?

The Court: That is sufficient.

Mr. Sizer: I want to show—

The Court: (Interrupting.) I say, that is sufficient.

Mr. Sizer: I will ask this question, with your Honor's permission—

BY MR. SIZER:

Q. As to the result of your affiliations with Dr. O'Neil and your connection with the light theory cure, is it a fact that the medical association in Chattanooga here expelled you?

A. Yes, sir; for the reason that we differed upon our idea of the code of ethics; they thought I was transgressing and I knew I was not.

Q. How long since they took you back into good fellowship?

A. I think I have been back—some of their secretaries can tell you, if they are here—

Q. Well, about how long?

A. Three or four years.

Q. And that occurred some five or six years ago?

A. Yes, sir.

Q. And you were out of harmony two or three years on account of that?

A. No, sir—not any disharmony at all. It just came

on over the question of what the code of ethics meant, just a legal question.

Q. You say you have drunk Coca-Cola?

A. I have.

Q. To what extent?

A. Well, maybe I have taken about ten or fifteen drinks of it.

Q. A day?

A. Oh, Lordy no!

Q. You say you have not taken that much a day?

A. No. I would not look like I do now if I did.

Q. How much have you taken in the course of a day?

A. I have taken two drinks that I remember one day, one in the morning and one in the evening.

Q. Do you drink tea and coffee?

A. I drink a small quantity of coffee.

Q. About how much in the course of a day?

A. I absorb about one grain and one-fifth of caffeine per diem.

Q. How many cups of coffee?

A. A cup has nothing to do with that ——

Q. You didn't measure the caffeine that you took—you don't measure the caffeine that you take in every cup of coffee?

A. I am able to—

Q. (Interrupting.) You take one cup of coffee?

A. Yes, sir.

Q. And a cup of coffee contains from one and a half to three grains of caffeine?

A. I think you might put three grains in it, but three grains is not usually—in a five-ounce cup of coffee it would not taste very well. The average would be about one and a half.

Q. The average would be about one and a half?

A. One and a half to one and a fifth.

Q. Did you ever analyze a cup of coffee to establish that?

A. That is an established fact.

Q. Did you ever analyze it so as to know by analysis?

A. No, sir.

Q. So that is a sort of off-hand opinion?

A. Well, yes.

The Court: As I understand, it is conceded as a general proposition that an ordinary cup of coffee contains about one and a half grains of caffeine.

Mr. Sizer: We have had a number of cups analyzed.

The Court: Do you dispute that?

Mr. Sizer: We say that a grain and a half is the mini-

mum, and that it goes up to two and three grains.

Mr. Miller: We think that the average cup is about a grain and a half.

Mr. Sizer: We say that is not the average but the minimum.

The Court: Well, I just thought there was no dispute about it.

Mr. Sizer: I think there is some dispute—

Mr. Miller: I will state in this connection that I understood as to questions as to tea and coffee, all those questions were considered as objected to, and I understood your Honor in ruling, that it was not necessary to repeat them—I wish to be quite clear about that. I object because I submit it is irrelevant and incompetent, and I understood your Honor to rule you admitted it because it showed that it contained some caffeine, for what it might be worth in your final summing up; but I did not wish throughout this record to rise and object to every question, and I want the record to show that it is understood that I am objecting to all questions on this point.

The Court: I think you did that when I overruled the exception, and it is understood it is not necessary for you to repeat it every time.

Mr. Miller: I desire to have the exception go as to the testimony on that point.

The Court: Yes.

BY MR. SIZER:

Q. Do you undertake to say that you ever saw a glass of Coca-Cola served at a soda fountain with more than an ounce of sprup in it?

A. Yes, sir, I think I have.

Q. How do you know that?

A. I will tell you, sir; I went in and called for a glass of Coca-Cola and he put the syrup in the glass, before he added any of this water to it, this seltzer water to it. I asked him to give it to me and I put it in a two or three ounce bottle and there was an ounce and a half of it.

Q. What particular drug store was that?

A. That was on the corner of Sixth street and Market.

Q. Do you know whether that was pure Coca-Cola syrup or whether it had been diluted with simple syrup?

A. It was the Coca-Cola syrup that he drew out.

Q. I say, you do not know whether that was the pure syrup as it was furnished to the druggist or whether he had diluted it with simple syrup before he put it in the fountain.

A. It might be diluted to fifty per cent. for all I know; that is what I got.

Q. Isn't it true that a great many of the soda fountain

dispensers dilute the Coca-Cola syrup—

A. Would not that be dishonesty?

Q. I say, do you know whether that is a fact?

A. I don't know that the druggists do.

Q. You say that the drug store is at the corner of Sixth and Market street?

A. Yes, sir.

Q. Who is it keeps it?

A. Mr. Embrey.

Q. What was the date on which you got that?

A. Yesterday evening about seven o'clock.

Q. Did you call for an "extra strong"?

A. No, sir. I called for "Coca-Cola." I didn't specify as to how I wanted it.

Q. Now, that is the only occasion on which you have observed more than one ounce of Coca-Cola syrup served in a glass or more than one ounce of syrup served in a glass of Coca-Cola?

A. I would not say the only occasion. I have frequently seen syrup exceed that mark on the glass, the glass being marked for the ounce.

Q. How do you know that?

A. I say I saw that.

Q. Who was it?

A. They say so.

Q. Did the glass that they poured this stuff out for you into have a mark on that glass, to show where the ounce would come to?

A. That is the way I understood it.

Q. It is a fact that Coca-Cola syrup is served generally in simple glasses without any mark on them?

A. Yes, sir; quite possible—I am not authority on the subject.

Q. You are not an authority and do not profess to speak as an authority on the question of how much Coca-Cola syrup is served in the ordinary glass of Coca-Cola?

A. I say, it varies a good deal.

Q. Well, some people do not want but a very little syrup?

A. Yes, sir; that is quite possible.

Q. They want to take a good deal less than an ounce?

A. Yes, sir.

Q. And sometimes a man goes in and asks for a good deal of it and you give him more than an ounce?

A. Yes, sir.

Q. You have seen that?

A. Yes, sir; I think so.

Q. You treated some patients, you say, suffering from

the effects of Coca-Cola?

A. Yes, sir.

Q. Who were they?

A. Well, will I have to mention the names?

Q. Yes. We would like to get the names.

The Court: He may mention them privately to counsel later.

BY MR. SIZER:

Q. You don't know, of course, whether they were taking Coca-Cola except as they told you?

A. No, sir; I do not.

Q. They may have been taking something else in addition?

A. Yes, sir.

Q. You don't know how much coffee or tea in addition?

A. No, sir; only by their statements.

Q. They were not suffering from any mysterious malady, were they?

A. One of them was suffering from a serious malady.

Q. Will you please indicate on that list which one of them was suffering from a serious malady?

A. I mean, that might have had a serious conclusion.

Q. Might have had?

A. Yes, sir.

Q. It didn't result seriously, though?

A. No, sir.

Q. Can you state how many of these patients you treated?

A. I believe I have observed some nine or ten, but I would not specifically state more than two or three.

Q. Two or three?

A. Yes, sir.

Q. That you personally treated?

A. Yes, sir.

Q. You say wakefulness is detrimental to human health?

A. Yes, sir.

Q. Well, sometimes and on some occasions it is quite advantageous to be wakeful, is it?

A. If there was danger of burglary it would be.

Q. Well, what you mean to say and all you mean to say is that if a man habitaully or over a long period of time gets less than the normal amount or sleep, it would be detri mental?

A. Yes, sir; if it went over two or three days.

Q. And different people will be kept awake by different things?

A. Yes, sir.

(Thereupon, at 12 o'clock noon, the Court took a recess until 12:20 o'clock P. M.)

AFTER RECESS.

The Court met after recess at 12:20 p. m.

GOVERNMENT'S EVIDENCE.

JOHN W. M'QUILLAN resumed the stand for further examination, testified:

CROSS EXAMINATION, BY MR. SIZER (Continued.)

Q. Doctor you have stated on your examination in chief something about chromotolysis?

A. Yes, sir.

Q. What was that?

A. Chromotolysis is a change that takes place chromatin.

Q. Well is that the result of germs and bacteria?

A. Sometimes it might be.

Q. Is that nearly always so?

A. I am not prepared to state that.

Q. Do you know of any case of chromotolysis resulting from drug toxicity—

A. No, I have not studied that.

Q. Made no study of that?

A. Now arythmia, that is irregular pulse.

Q. Now, arythmia, that means a lack of rythm?

A. An irregular beat, yes sir.

Q. Now, if you see somethhing that excites you that will cause arythmia?

A. Yes, sir, and then again if you were suffering from arythmia it might make your heart beat irregular.

Q. Sometimes if you work a little too hard, you get tired?

A. Yes, sir, possibly that may cause it.

Q. Is auricular fiburation the cause of arythmia?

A. Well, just explain that term?

Q. Do you know what it is?

A. Well no, not under that term.

Q. And you do not know of course whether it produces arthymia?

A. Auricular fiburation, I would like to have that explained.

Q. If you don't know it under that term or name I will not pursue it?

A. I am not acquainted with it under that name.

RE-EXAMINATION, BY MR. MILLER.

Q. You know what the words mean but you don't know

how or what Mr. Sizer means by it?

A. Well, so many men invent their own terms.

Q. Now, about the administration of light, Doctor O'Neil states whether or not the administration of light, of the turning on of rays of light has been recognized for years by standard authorities as therapeutic agent?

A. Yes, sir.

Q. Now, as to Dr. O'Neil, I will get you to state whether or not it is a fact he had some question raised about irregularity of his conduct here in court and that Mr. Sizer defended him?

Mr. Sizer: I don't think that material but I will admit.

BY MR. MILLER:

Q. I will get you to state whether Mr. Sizer made a very strong statement publicly as to the honesty of Dr. O'Neil?

A. Well, he seemed to be a most outrageously depressed man by the medical profession—

(Witness excused.)

J. F. SHEPHARD,

the next witness called by the United States, of lawful age, duly sworn, testified:

DIRECT EXAMINATION, BY MR. MILLER.

Q. Doctor, what is your age?

A. Sixty-two.

Q. State how long you have lived in Chattanooga?

A. Twenty-five years.

Q. What is your profession?

A. Practicing medicine.

Q. Are you a licensed practitioner in the State?

A. Sir?

Q. I say are you a licensed practitioner?

A. Yes, sir.

Q. Now state whether or not you have had occasion to frequent the places where soft drinks are dispensed in Chattanooga, and where Coca-Cola is dispensed, or where it was dispensed during the year 1909, in the fall of that year?

A. I have for a good many years.

Q. Now, did you have occasion to observe at that time the manner of its consumption? I mean its consumption, the extent of its consumption by children and by young persons? If so, tell what your observations were?

A. Well, I see all classes of people drink it, that is men, women and children. That is mostly with the younger women, a great many of them shop girls.

Q. Did you or not observe to what extent it was consumed by children, that is, persons from 10 to 14, 12 to 15 years of age?

A. I have seen them take it.
Q. Freely or otherwise?
A. Freely or otherwise?
Q. Yes?
A. How do you mean by that?
Q. I mean to what extent?
A. I see a great deal of it; I frequently am at the Live & Let Live drug store.
Q. That is one of the popular drug stores?
A. Yes, sir.
Q. One of the popular soda fountains of the town?
A. Yes, I have a franking privilege there, and I usually take a lemonade and a dish of ice cream most every day.
Now, what were your observations about the time indicated October, 1909, about that time, as to how this drink, coca cola, was dispensed, whether or not it was in variable quantity or whether it was graduated in any way?
A. The custom of the soda water jerker is to put the glass down below the spout or spiket and pump in a certain amount.
Q. Was that or not left to the judgment of the dispenser?
A. Yes, sir.
Q. Now, state whether or not that was the usual and customary method to dispense it here at that time and still is?
A. I think it has been that way all the time.
Q. Have you ever drank coca cola yourself?
A. Yes sir, I have.
Q. Describe its effects on you doctor?
A. Well, a long time ago, that is 12 or 14 years ago.
Q. Don't go into the details, just give it in a general way?
A. It gives me an irritable heart and caused sleeplessness.

CROSS EXAMINATION, BY MR. SIZER.

Q. You say that was how long ago you got an irritable heart?
A. It nearly always does me that, but since my experience with taking it regular, that was 12 to 14 years ago.
Q. You take it regularly all the time?
A. I did for a time, quite a while I took it twice a day.
Q. Do you now?
A. No sir, I average may be a couple of glasses a month.
Q. Do you drink tea and coffee?
A. No sir.
Q. Do you smoke?
A. No sir.

Q. Coca Cola then is the only caffeine containing beverage you ever drink?

A. No, I drink coffee, but not in a long time; I occasionally take a cup of coffee.

Q. How long has it been since you gave that up?

A. Well, for the last fifteen years I have taken occasionally a cup; my family of seven, there is one cup of it drank, and that is by my wife.

Q. You do not spend a great deal of time around drug stores?

A. No sir, not a great deal but I am there almost daily.

Q. About how much time do you spend every day?

A. Probably half a hour.

Q. Every day?

A. Yes, sir.

Q. And you see people come into the fountain and call for various kinds of drinks?

A. Yes, sir.

Q. Isn't this a fact that small children, say under 12 or 15 years of age generally prefer such drinks as chocolate, ice cream and lemonade, sweet things like that rather than coca cola?

A. A great many of them do—

Q. Is that the general rule?

A. Well, with very small children I expect it is, but I see quite a number who take coca cola.

Q. You see a great many young women around there that take coca cola?

A. Yes sir, and boys.

Q. And a great many men?

A. Yes, sir.

(Witness excused.)

S. R. BARNES,

the next witness called by the United States, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION, BY GEN. COX:

Q. Where do you live?

A. In this city, Chattanooga.

Q. How long have you lived in Chattanooga?

A. I have been living here since April, 1908.

Q. What is your occupation now, doctor?

A. I am a manufacturing chemist and pharmacist.

Q. Where did you live the year before you came here?

A. Stevenson, Ala.

Q. What were you engaged in at that place?

A. Same line.

Q. And where the year before that?

A. Bridgeport, Ala.
Q. How long did you live at Bridgeport, Ala.?
A. Between five and six years.
Q. And what were you engaged in at that place?
A. The same thing; with the addition we had a drug store connected with it.
Q. You had a drug store in connection with it?
A. Yes, sir.
Q. And where was that?
A. At Bridgeport.
Q. State whether or not you sold coca cola at your drug store at Bridgeport, Ala.
A. We did.
Q. How long did you sell it?
A. I couldn't say just exactly how long we sold it, but for some time.
Q. Now, state whether or not during the time that you sold coca cola at Bridgeport, Ala., you observed the effect it had on the consumers, or any of them?
Mr. Sizer: I object to that.
Gen. Cox: He said he was engaged in sale of coca cola.
Mr. Sizer: That don't make any difference.
Mr. Hirsch: He would be the same as any lay witness.
Gen. Cox: I am not asking for medicinal effect.

BY GENERAL COX:

Q. State whether you noticed any marked or visible effect upon the consumer of coca cola at that time at your place?
Mr. Sizer: This witnes has not qualified as an expert on that point. He may observe when a man takes a glass of coca cola—he might go out and do something else; he couldn't tell unless he was an expert whether the things he observed were effects of coca cola.
The Court: I am not assuming he will answer about things he does not know—he asked for things he observed, any visible effects, and he can state.
The witness: I did sir.
Mr. Sizer: We except.

BY GENERAL COX:

Q. And how many persons have you observed?
A. It is impossible to tell how many. I noticed it on a great many.
Q. State what those visible effects were?
A. Well, in one case, especially I noticed more nervousness, nuereathenia condition, exhausted and complained of sleeplessness.

Mr. Sizer: He is testifying as to physiological conditions, and I submit he is not qualified as an expert along that line.

The Court: I think that the portion of the answer that states as to complaints is not competent; the witness will limit his answer to the action of the parties as they came in and took coca cola; he may testify if he knows as to their actions but as to what other persons stated to him that is excluded from his answer.

BY GENERAL COX.

Q. Tell, doctor, in detail the things you observed, with reference to this party?

A. Well, one effect was that seeming desire to continue the drink.

Q. Did you observe how many glasses the party drank per day?

A. Well, I could not qualify to the number exactly because I only observed a few during the day but whenever I did observe it I could at least say three or four drinks a day.

Q. Now then, state whether or not by reason of your observation of the effect of coca cola upon consumers you did or did not quit the sale of it?

A. I did. I will say furthermore that I objected to it, to its being sold in our store. There was a disposition on the part of the others to continue it.

Q. State whether or not the consumers call for it upon one day would come back and call for it another day or the same day?

A. Invariably so.

Q. State whether or not since you have been in the town of Chattanooga, during the last year, you have observed soda fountains and parties who were consumers of this coca cola, and if you saw any visible effects upon them, tell what they were not?

A. Not in the city fountains, in town.

Q. Well, where if anywhere?

A. At the stores on the outskirts of town, the suburban parts.

Q. State what you have seen there?

A. My observation is that boys, a great many young boys would drink it; I have seen them drink it from the bottles; I have seen them take it from bottles, and if I am at liberty to state the fact I have observed that they were the incorrigible boys of the neighborhood, the ones who drank it.

CROSS EXAMINATION, BY MR. MILLER:

Q. It is only the incorrigble boys that drank it?

A. I didn't state that.
Q. So far as your particular locality is concerned, that is the kind of boys who drink coca cola?
A. Yes.
Q. Exclusively?
A. I did not say exclusively, no sir.
Q. Now, what business are you engaged in doctor?
A. Manufacturing chemist and pharmacist.
Q. And connected with what firm or house?
A. Chicamauga Manufacturing Company.
Q. What do they make?
A. They make extracts, drugs, groceries sunderies.
Q. What kind of drugs?
A. All drugs used by and sold by grocer's.
Q. What kind of extracts do you make?
A. Flavoring extracts.
Q. Do you make any fountain syrups?
A. Yes, sir.
Q. What kind?
A. Any kind that they want except coca cola.
Q. What for instance, just mention some of them?
A. Lemon, vanilla, strawberry, raspberry, almond, or any flavor they desire.
Q. And chocolate?
A. Yes, sir.
Q. Coffee extract?
A. I have not had the opportunity of making that.
Q. You have not made that?
A. No.
Q. Do you make oil of bitter almonds?
A. We do not make the oil.
Q. Sell it?
A. No.
Q. Almond extract?
A. We do.
Q. Now, where was it that you said that you observed some people drinking coca cola, where was that you were running a store?
A. Bridgeport, Ala.
Q. Did you testify to more than one case where you observed certain symptoms as the result of the use of coca cola?
A. I did.
Q. How many?
A. I couldn't tell you sir, certainly.
Q. Can you give us any particular case?
A. Yes, sir.
Q. One case that impressed you?

A. Yes, sir.
Q. Who was that a man or a woman?
A. A woman—a young lady.
Q. Do you know how much she took, I believe you said three or four bottles a day?
A. Not bottles, but I have observed her taking it from glasses.
Q. From the glass at the fountain?
A. Yes, sir.
Q. How much more than that she drank you don't know?
A. No, sir.
Q. Do you know whether she drank anything else?
A. I do not.
Q. Tea or coffee?
A. No, sir.
Q. Or whether she took morphine?
A. Couldn't say.
Q. I say do you know whether she took morphine?
A. Well, I am sure she didn't.
Q. Do you know?
A. I couldn't swear it.
Q. Do you know whether she took cocaine?
A. I couldn't swear it.
Q. Over how long a period of time did you observe her conduct with respect to drinking coca cola?
A. A school year.
Q. A year?
A. During the school year.
Q. Now, did you notice any other very marked cases?
A. Well none so very marked.
Q. And that is the only one that so particularly impresed you?
A. Yes sir, the others were among boys.
Q. Did you sell any other soda drinks at that same store?
A. Yes, sir.
Q. And what?
A. I couldn't enumerate them—I wasn't in the store all the time.
Q. Did you sell chocolate soda?
A. I expect we did.
Q. Coffee extract?
A. I don't think so; not that I remember.
Q. Are you sure about that?
A. I am very sure because if they had I would have made it for them.
Q. You didn't make it and therefore for that reason

you don't think you sold it?

A. No, I don't think they did.

Q. One other question, doctor: I just want to get you to state where it was you bought your coca cola syrup at the time you run that store at Bridgeport?

A. I am under impression that we bought it from Trigg Dobbs & Co., here in Chattanooga.

Q. Did you get it at any other place than Trigg Dobbs & Company?

A. I couldn't state; I didn't do the buying for the store.

Q. You don't know how that is?

A. No sir.

Q. What was the style of that firm?

A. The Botannic Drug Company.

(Witness excused.)

Mr. Miller: We have asked Mr. Dobbs under a subpoena duces tecum to bring his books or a memorandum from his books showing the quantity of coca cola syrup that was purchased from the Coca Cola Company for six months immediately prior to the seizure, and if counsel will accept that statement without his coming on the stand I will have a copy of it passed to them this afternoon. If they prefer him personally to go on the stand I will have him go upon the stand.

Mr. Sizer: If it is just the statement you want we do not care about Mr. Dobbs.

Mr. Miller: That is all.

Mr. Sizer: Then that will be all right.

Mr. Sizer: We will ask to file that statement as exhibit "A" to his testimony.

The Court: It might be done without there is some objection.

Mr. Sizer: If there is any error about it we reserve the right to call Mr. Dobbs back and ask him about it.

The Court: All right.

(Witness excused.)

WORTH HALE,

recalled for further examination, testified:

BY MR. MILLER:

Q. Doctor, I will ask you whether or not a drug such as caffeine may be recognized by its physiological action on the organs or functions of the body by administration of such as was resorted to by you in the case of animal experimentation?

A. It may.

Q. In the administration of the drug or ingredient that you did administer as you testified to yesterday, I will ask

you whether or not you recognized a pronounced physiological action that is present when caffeine is administered?

A. I did not in the particular experiment referred to, but I did in others carried out at the same time.

Q. From the results obtained, tell whether or not the effects which are shown on the tracings that were offered in evidence on yesterday were due to caffeine that was present?

Mr. Sizer: I understood him to say he could not say whether symptoms were the results of the caffeine or not.

The Court: He is now asking if he can state ——

Mr. Sizer: He asked him that question awhile ago, and he said he could not from his experiment, but from other experiments performed at the same time.

The Witness: That occurred out of the same solution Mr. Sizer.

BY MR. MILLER:

Q. Now do you say you did or did not recognize the effect produced as that due to caffeine?

A. Yes sir, I did.

Mr. Miller: Now I offer these tracings in view of his testimony and both that of Dr. Salant and Dr. Matthews as to animal experimentation and the physiological action of drugs identifying the drugs, I now offer these tracings in evidence as exhibits to this witness testimony.

Mr. Sizer: Now, your Honor recollects that this witness stated in the first place that ——

The Court: (Interrupting.) I recollect it; I exclude it. I think it is shown here that caffeine is demethylated in large part or entirely in the body, and that to try to setlle any question in this case by experiment as the direct effect of combination citric acid and caffeine when brought into direct opposition with the muscles is so remote and so apt to be misleading that it should be excluded, and is so little analogous to the direct action of caffeine as a food substance taken into the body or mouth; it is getting too far into the field in my judgment.

Mr. Miller: I note an exception.

BY MR. MILLER:

Q. Now, if I understood your answer ——

Mr. Miller: But first, as I understood your Honor this morning I could not read from this text book in support of the statement of the witness made yesterday?

The Court: Yes.

Mr. Miller: As respecting the discharge in the urine?

The Court: Yes.

Mr. Miller: I note an exception to that. We have one other witness of some length which I really think time would be saved by a conference with, and I have not had an opportunity to have as full a conference with as I desire, and it is now six minutes to adjourning time—

Mr. Sizer: Oh no, it is over an hour.

Mr. Miller: Then I will go ahead.

(Witness excused.)

W. F. BOOS, recalled for further examination, testified as follows:

The Court: This is the last witness?

Mr. Miller: Yes, with the exception of Dr. Kebler to file a list.

BY MR. MILLER:

Q. Doctor Boos, assuming that caffeine be administered by mouth, and be afterwards found present in the urine of the person who took it by way of mouth, I will get you to state what would be the course of the caffeine after entering the mouth before being excreted?

A. The caffeine after being administered by the mouth might be in part and is in part absorbed from the stomach and in part from the intestines into the blood. And when it is or has been observed into the blood it will circulate throughout the body and reach all the tissues reached by the circulation, including, of course, the brain, the organs of digestion, the muscles, skin and in fact every organ of the body.

Q. Now, state whether or not the effects that have been described by Prof. Matthews on the heart and other organs be described, would effect health and if so how, the human health in the case of administration of caffeine?

A. Well, I do not remember exactly Dr. Matthews' statement.

Q. As to the effect on the musles, the heart, the brain, and the spinal cord, did you hear his statement?

A. Yes, I remember now.

Q. Accepting this statement as being correct state whether or not the administration of caffeine would have any effect on the health of a person and if so what that effect would be.

A. It would have a deleterious effect or a harmful effect upon the health of a person.

Q. Did you hear the testimony of Doctor Formad respecting chromotoloysis?

A. Yes, sir.

Q. Now, assuming that the condition of chromotoloysis

resulted from the administration of caffeine, state whether or not that would have any appreciable effect on health, and if so what and how?

A. This chromotoloysis will represent a change of a cell from normal condition, and any change of the cell from a normal condition of this character would necessarily carry with its impairment of the function of that cell, whatever that function may be.

Q. And what do you mean by impairment of function? How does that effect the health of an individual?

A. Why impairment of the function of any of the cells in the body is of course necessarily followed by impairment of the health of that individual.

RE-CROSS EXAMINATION, BY MR. SIZER:

Q. Doctor, will chloroform administered to an animal to cause death, in producing death, cause chromotolysis, or may it do it?

A. I could not tell you Mr. Sizer whether it may or not.

Q. How large a dose of caffeine would be required to produce chromotoloysis administered through the mouth?

A. That I can't tell you either.

Q. In the course of caffeine, as it passes through the body does it or not in part pass through the liver?

A. Undoubtedly, yes.

Q. What proportion of it?

A. I should say that the greater portion of it would pass through the liver.

Q. It is demethylated in the liver?

A. I don't know.

Q. Do you know how much of the caffeine would pass through the thoracic cavity?

A. No sir, I cannot tell you.

Q. Is caffeine ever found as such in the urine of a normal human being, using tea and coffee for instance?

A. I cannot tell you; I don't know.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. In this passing through the liver of the caffeine, state whether or not the process you describe — if there is any normal function by the liver or any change in order to discharge it.

A. The very fact that in the body caffeine is demethylated, shows that the body is trying to reduce it to a simpler substance which would be more easily eliminated and less troublesome to the body, but this effort of the body to

demythlate the caffeine is of course an added effort to the ordinary work which has to be performed by the organisms during the day.

Q. What is the result of this added effort as respects health, that is how does it affect the normal health of a person?

A. It is an added tax upon the organism, and if such taxes are unnecessary, it is not of beneficial effect. It has a harmful effect.

Q. What do you mean by the demythization of the substance caffeine?

A. Caffeine is a trimethylxanthine.

Q. By trimethylxanthine, you mean composed of three ——

A. (Interrupting.) It is a substance called xanthine, three hydrogens of which are replaced by the methyl group in the course of the chemical changes which occur in the organisms, these methyl groups — those are chemical groups very hard to explain in detail — these groups are to a certain extent removed from the molecules, the substance, and in that way the substance is changed into substances such as theobromine, theophyllin, and paraxanthine, and this demethylization or removal of the methyl group, first caffeine, with three of the methyl group, then reduced to two of the methyl group, and then in some forms, to only one of the methyl group, monomethylxanthine. There are two of those found.

Q. Did I or not understand you to say that you were not prepared to give an opinion as to whether chromotolysi results from the administration of chloroform or not?

A. I could not tell you.

Q. You did not give an opinion on that point?

A. I did not.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Demethylization of caffeine is simply breaking it up into simpler substances?

A. Yes, sir.

Q. All food and every substance taken into the body undergoes that sort of conversion and breaking-up into simpler substances?

A. Yes, sir; but the result is the building-up of the body.

Q. And the production of energy by the process of oxydization?

A. In which instances do you mean?

Q. In any instances does not a substance oxydize in the body, or when the substance is oxydized in the body,

does not that process of oxydization produce energy?

A. Yes, it does, in the case of oxydization, but may I explain that?

The Court: Yes, sir.

The Witness: In the case of demethylization of caffeine, we do not know whether that is oxydization or not.

BY MR. SIZER:

A. You do not know that?

A. No, sir.

Q. Caffeine is a substance easily soluble, is it not?

A. No, sir; it is not easily soluble.

Q. What about the solubility of caffeine, as compared with xanthine, for instance.

A. I think that xanthine is more soluble than caffeine.

Q. Are you sure about that or not?

A. Yes, sir; I am sure.

Q. You are sure that xanthine is more soluble than caffeine?

A. Oh, yes, I know it is.

(The witness was excused.)

L. F. KEBLER,

recalled to the stand for further examination, testified as follows:

DIRECT EXAMINATION.

Mr. Miller: If your Honor please, this witness on his cross-examination was asked if he knew the names of certain authorities who thought that caffeine was a poison — for the writers who speak of it as a poison. He was not prepared at that time to furnish the names of all them. I asked leave to have an opportunity for him to make research and present them. He has a list of them and I move to have them filed because he could not produce them at that time, and I see no reason why he could not produce them at this time.

Mr. Sizer: We have no objection to Dr. Kebler filing that list. Of course, we have not seen the authorities and we want the right to recall him for re-cross examination after we have seen the list.

The Court: It may be filed and marked as an exhibit.

The Witness: I have written a line across the bottom of this one that is not on the others, and I cannot file this one.

Mr. Sizer: And there is a line at the bottom of the list which is not strictly a recital of the authorities.

(By consent, this line is stricken out and does not appear in the exhibit as copied herein.)

The exhibit was as follows:

MARCH 21, 1911.

AUTHORS USING THE TERMS "HABIT-FORMING", "ADDICTIONS", "INEBRIETY", and "HABITUES", IN CONNECTION WITH CAFFEIN BEARING PRODUCTS.

BULLARD, W. N., M. D.,
Boston Medical and Surgical Journal, 1886, page 314, Art. "Chronic Tea Poisoning."

CARRINGTON, HEREWARD, Member Am. Inst. for Scientific Research, etc.,
in his work "Vitality, Fasting and Nutrition", page 137.

CROTHERS, T. D., M. D.,
Morphinism and Narcomania From Other Drugs, 1902, pages 303-311. Also, (same author) Diseases of Inebriety, 1893, pages 369-376.

LESZYNSKY, WM. M., M. D.,
Medical Record, Vol. 59, page 41, 1901.

RICHARDSON, RUBERT, M. D.,
The Dietetic and Hygienic Gazette, 6 Vol. 22, page 385, et seq.

WESSELHOEFT, WALTER, M. D.,
Boston Medical and Surgical Journal, Vol. 160, 1909, page 608.

WOOD, JAMES, M. D.,
Medical News, Vol. 65, 1894, page 486, Art. "Tea Intoxication".

L. F. KEBLER.

Writers not exclusively dealing with toxicology, but who designate caffeine as a poison, are as follows:

WOOD, B. C.,
Therapeutics, Its Principles and Practice (1909), page 217.

STEVENS, A. A., DR.,
Modern Materia Medica and Therapeutics, page 55.

SCHMIEDERBERG, O., DR.,
Page 96 of his "Pharmaklogie" calls caffeine "a nerve and muscle poison."

BUTLER, DR. GEORGE F.,
A text-book of Materia Medica, Pharmacology and Therapeutics, page 268, treats of poisoning by caffeine.

MEYER U. GOTTLIEB,
Experimentelle Pharmakologie, 1910, page 25, "Caffeine is an almost purely stimulant poison."

DIXON, WALTER E., M. D.,
Manual of Pharmacology, 1906, page 110-11 classes caffeine with convulsive poisons.

RUSBY, DR. H. H.,
Druggists' Circular, Vol. 52, 1908, treats of the poisonousness of caffein."
BINZ, C.,
Archiv. f. Experimentelle Pathologie u. Pharmacologie, page 197, treats of the toxicology of caffeine.
WEIGL, DR. J., (Munchen)
in a pamphlet entitled "The Danger of Caffeine", page 8. Same writer in pamphlet entitled "Coffee Drinking and Health", page 3.
GUNTHER, DR. LEO., (1907)
in a pamphlet entitled "Coffee as a Domestic Beverage" (Der Kaffee als Hausgetrank), page 15, "Coffee a Poison for Children". On page 8 appears a cut of a test-tube bearing the name "Coffein" (Caffeine) and the word "Gift" (poison) together with a skull and cross-bones.
KIRKE'S HANDBOOK OF PHYSIOLOGY,
W. D. HALLIBURTON, M. D., 1905, on page 469, enumerates a number of alkaloids, among them being caffeine, and designates them all as poisonous.
LEMAIRE, M. P., M. D.,
Jour. de Med. de Bordeaux, 1909, page 295 et seq., vol. 59, reports about 30 cases of poisoning by caffeine.
GERATY, T., L.K.Q.C.P.I., etc.,
The Lancet, 1899, Vol. I., page 219, reports a case of caffeine poisoning.
ROUTH, C. B. F., M. D.,
Proceedings of the Medical Society of London, 1884, page 405, reports a case of caffeine poisoning.

L. F. KEBLER.

DR. W. F. BOOS,

recalled as a witness herein, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor Boos, what portion of humanity, or if you are prepared to express an opinion, is afflicted with heart disease?

A. It is difficult to say the proportion but a great many people have it, and a great many people have it who do not realize that they have it.

Q. How are you able to say that?

A. I have it and I would be made to realize it very quickly if I would take a drug that would act on the heart.

Q. State whether or not you have performed or wit-

ed autopsies, and if so, approximately on what number
ersons.
. I have seen perhaps 800 or more autopsies.
. On human beings?
. On human beings.
. Did those persons die of heart disease?
. Some of them died, but I have seen a great many
psies of people who have died of entirely different
bles where there was no history given by them before
h of having had heart disease but where the autopsy
ved undoubtedly that they had heart lesions and must
e had troubles from that cause.
. Now, in the case of persons who were afflicted with
t disease, what if any effect would the administration
affeine have in doses of one and a quarter grains taken
onnection with this Coca-Cola syrup formula which
tor Fuller has filed — what effect might it have?
. In cases of heart disease which are not recognized
uch during life, the heart is compensated and is doing
. If you give drugs that act upon the heart you are
apt to produce trouble of some sort, especially with
eine which tends to contract the heart but does not
l to assist the diastole, the proper filling of the heart
r contraction.
. Explain what you mean by those terms of distension
contraction which you employed.
. The effect of caffeine on the heart is to increase its
lency to contract, and the individual contractions may
nore powerful. They are as a rule more frequent, and
time between the contractions being lessened, the heart
not have an opportunity to fill itself before it con-
ts again; and in cases of heart disease the opportuni-
given to the heart to fill itself is a very important
g.
. In the case of a consumer of caffeine, taken in the
ge given in this exhibit of Doctor Fuller's, one or more
ces of the syrup — what might be the probable effect
he human health of the individual affected with heart
ase?
. It would tend to be deleterious.

CROSS-EXAMINATION,

BY MR. SIZER:

. The fact is, anything of an exciting or stimulating
re is bad for a man with heart disease?
. That is not quite true, because — yes, of course that
rue.

Mr. Sizer: That is all.

(Witness excused.)

R. T. WRIGHT,

the next witness called on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY GENERAL COX:

Q. Where do you live?

A. Chattanooga, on Missionary Ridge, near the city.

Q. What is your profession?

A. I am an attorney-at-law.

Q. How long have you lived in Chattanooga?

A. Twenty-two years.

Q. Are you acquainted with the drink called Coca-Cola?

A. Yes, sir.

Q. Where is it sold?

A. Most everywhere in the city and out in the suburbs in bottles, and in the fountains in the city and at all the drug stores.

Q. Did you ever drink it?

A. Yes, sir.

Q. To what extent?

A. To excess.

Q. What do you mean by excess? For instance, how many glasses or bottles a day?

A. Well, I used to take about two drinks a day but I have went to four or five.

Q. You have gone to four or five?

A. I have not for the last four or five days.

Q. You quit—what made you quit?

A. Well, I heard some—

Mr. Sizer: I don't think that has any bearing on the case.

The Court: He says he heard and that is hearsay.

BY GEN. COX:

Q. Did it have any effect upon you—did you observe any effect on you or on your system by the use of Coca-Cola?

A. I would not have drank it if I had not.

Q. What effect did it have?

A. I was satisfied it was a stimulating drink; at least I thought so. It stimulated me.

Q. Tell the effects upon your nerves or brain, or your heart or whatever part of your body it did affect.

A. That is very hard for me to explain to any one. I feel that it stimulated me. If I was worried I felt that a

drink of it relieved that worry for a while, and if I was mentally depressed, I thought taking a drink of it revived me.

Q. State whether or not it is a fact that it caused restlessness or sleeplessness, or nervousness.

A. I think it caused sleeplessness, and I am satisfied more or less nervousness.

Q. State whether or not you observed the effects on children of the use of Coca-Cola, and if so, to what extent.

A. Yes, sir. I think it has a more injurious effect on a child than to me. I have noticed it in my own children.

Q. What did you notice in your own children?

A. Kept him awake.

Q. When you observed that fact did you not stop him from drinking it?

A. I did.

CROSS-EXAMINATION, BY MR. SIZER:

Q. Do you drink coffee?

A. Yes, sir.

Q. How much?

A. I drink on an average two cups a day.

Q. Any tea?

A. No, sir. In the summer when I quit coffee I take a couple of cups of tea a day.

Q. Do you smoke?

A. Yes, sir.

Q. About how many cigars a day?

A. I think about three or four cigars a day.

Q. Three or four cigars a day and two cups of coffee and from two to five glasses of Coca-Cola—

A. I have taken from two to five.

Q. That is a good deal of stimulation in old life?

A. There is no doubt about it.

Q. Now, you speak of observing the sleeplessness from the use of Coca-Cola. That is only when you take a bottle at night?

A. I have noticed that those days that I took more Coca-Cola I was restless at night. I got in the habit that I can sleep tolerably well if I didn't go over my two glasses, but if I drank three or four I could not sleep.

Q. If you drank three or four glasses of Coca-Cola and smoked three or four cigars and took two or three cups of coffee, you didn't sleep well?

A. Certainly not.

Q. What was the age of the child?

A. I notice my little boy when he was eleven years of age and he seemed very restless. He was about ten or eleven when I discovered it.

Q. How much did he take?
A. Of course I only had his word and I don't know.
Q. You told him to stop it?
A. Yes, sir.
Q. He did stop?
A. I had to reprimand him for it.
Q. But he stopped it?
Q. He says he has and I think so.
Q. Did you give him coffee?
A. No, sir.
Q. Tea?
A. He does take tea sometimes, but very seldom, a cup in the summer time. We do not use tea in the winter at our house. It is our summer drink.
Q. You are of a highly nervous disposition, anyway?
A. Yes, sir; I am of a very nervous temperament.
Q. You live in the summer time up on the mountains?
A. I live for about three months of the year on Lookout Mountain.
Q. And you have been in the habit when going up there of going without Coca-Cola entirely?
A. Yes, sir.
Q. Still continuing your tea or coffee?
A. No, sir; I am mainly a buttermilk man on the mountain. I go up there for my health and I take those things that are healthful.

REDIRECT EXAMINATION, BY GEN. COX:

Q. Does your health improve when you quit drinking Coca-Cola, on the mountain?
A. My health improves during the summer time.

RECROSS-EXAMINATION, BY MR. SIZER:

Q. You live out in the open air and plow?
A. No, sir; I don't plow but I take a grubbing hoe and grub up the roots for exercise.
Q. And you think that contributes to improving your health?
A. Yes, sir; hardens my muscles and makes me healthy.
Q. How old are you?
A. Fifty-two.
(Witness excused.)

W. J. DOBBS,

recalled as a witness on behalf of the Government, testified as follows:

DIRECT EXAMINATION, BY MR. MILLER:

Q. Have you a statement of the amount of Coca-Cola

purchased by your firm of Trigg, Dobbs & Company from The Coca-Cola Company of Atlanta and shipped for distribution in Chattanooga, or in the territory adjacent, during the six months immediately preceding this seizure, namely, October, 1909, and if so, tell what it is, in gallons.

A. 7,276 gallons.

Q. Did you out of that supply the bottling trade of Chattanooga?

A. No, sir; we only furnished the soda fountains and the different stands in the city.

CROSS EXAMINATION, BY MR. SIZER:

Q. That you sold throughout the territory reached by

A. Yes, sir.

Q. That is a radius of how many miles?

A. Most of this goes into the city but we have some trade outside the city; 75 or 100 miles is the fartherest we reach out, but we only have two or three customers that far.

Q. Do you know how much coffee you sold in that same length of time?

A. No, sir.

Q. Could you get us up a statement of it?

A. I could.

Q. I wish you would send us up a fair statement of the amount of coffee and tea you sold in that time.

A. All right.

Mr. Miller: I submit that is incompetent and I will object to it when it comes.

The Court: You do not require the witness to come back, Mr. Sizer?

Mr. Sizer: No, sir.

The Court: I will rule on it when it comes.

BY MR. SIZER:

Q. You are still distributing Coca-Cola?

A. We are.

Q. You are the sole distributor of Coca-Cola here?

A. We are not.

Q. You do not sell to the bottlers, but are you not the sole distributors of fountain syrup?

A. No, sir. Fritts & Wiehl have some trade in the city.

Q. In October, 1909?

A. I am not sure about that, but I do not think they commenced until 1910.

Q. At that time you were the sole distributor?

A. Yes, sir.

Q. So far as coffee and tea are concerned every other

wholesale grocer sells it?

A. Yes, sir; it goes all over.

Mr. Miller: The Government rests.

Mr. Sizer: Now, may it please your Honor, we desire to make a motion for a peremptory instruction in favor of the defendant. I do not care to argue the motion at this time. If your Honor has any doubt about it as to whether it is well taken, you can overrule the motion and we will put it in our evidence and then will renew the motion.

The Court: Does either side care to argue the motion?

Mr. Miller: Unless they do, we do not.

The Court: Well, I will overrule the motion, if neither side cares to argue it.

Mr. Sizer: If your Honor please, we understood that the Government would take all of to-day and part of to-morrow to complete their testimony and we are not prepared to go into our evidence, at least we would be much better prepared if your Honor would adjourn until to-morrow morning.

The Court: Before we adjourn I would like to see counsel and the jury in my room.

(Thereupon Court adjourned and the counsel and the jury proceeded to the Court Chambers.)

Adjourned until Wednesday, March 22, 1911, at 9 o'clock A. M.

Chattanooga, Tennessee,
Wednesday, March 22, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances, same as heretofore.

Thereupon, the claimant and intervenor, the Coca-Cola Company, introduced the following evidence:

JOHN S. CANDLER,

the first witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION, BY MR. SIZER:

Q. Mr. Candler, where do you reside and what is your profession?

A. Atlanta, Georgia; lawyer.

Q. With what firm are you connected now?

A. Candler, Thompson & Hirsch.

Q. How long have you practiced law?

A. Since March, 1882.

Q. Have you ever occupied any judicial position in the State of Georgia?

A. I was Solicitor-General of my judicial circuit for something over nine years, Judge of the Circuit Court in my State, Associate Justice of the Supreme Court of my State.

Q. Were you ever at any time connected with the Coca-Cola Company in any capacity, and if so, what?

A. I organized the corporation known as the Coca-Cola Company, that is to say, my law firm applied for the charter for that corporation, and it was organized under my advice as its counsel.

Q. When was the Coca-Cola Company organized?

A. The Company was organized, as I recall, in 1891, possibly the date of the charter is January, 1892.

Mr. Miller: We object to that; the charter shows for itself.

The Witness: Well, the company was organized in 1891 and the charter granted about 1892.

Mr. Miller: We object to that. I do not see that it is material, but if it becomes material, I want to object to it, because insofar as the date of the organization of the Company is concerned, we submit that the charter is the best evidence.

The Court: I cannot see that it is prejudicial to the Government, and I overrule the objection.

BY MR. SIZER:

Q. How long has the Coca-Cola Company, the corporation, been engaged in business, since the date of its organization?

A. Since the date of its organization.

Q. And in what business has it been engaged?

A. In the manufacture and sale of a soda fountain syrup known as Coca-Cola.

Q. In what way were you connected with this corporation from its organization, and up to what date did you continue to be connected with it?

A. I was the Vice-President of the Company, and a member of its Board of Directors from the date of its organization up to the middle of January, 1907.

Q. Who succeeded you at that time, in January, 1907?

A. Howard Candler succeeded me as Vice-President and on the Board of Directors.

Q. Who has been the President of the Coca-Cola Company since its organization?

A. Asa G. Candler.

Q. What relation is he to you, Judge?

A. My brother.

Q. Is he still the President of the Company.

A. He is the President of the Company at this time.

Q. Now Judge, will you state, if you know, who devised or invented the formula for this Coca-Cola syrup.

A. Personally I could not say of my own knowledge.

Q. Do you know from whom your brother, Asa G. Candler, or from whom the Coca-Cola Company acquired it?

A. The Coca-Cola Company acquired it from Asa G. Candler.

Q. And from whom did Asa G. Candler obtain it?

A. My recollection is from Joseph Jacobs, Woolfolk Walker, and possibly J. S. Pemberton, George S. Lounds. I think those were the principal ones.

Q. In that connection, state whether or not the transfer of the right of this formula was in writing.

A. All of them were.

Q. Where are the originals and where were they filed?

A. I could not say — without some — I could not say now. If you have any papers there that would refresh my memory, I might be able to tell you, but I could not without them.

Q. What was the name of that syrup as originally invented — what was the first name of it, if you remember?

A. I could not actually tell you. My connection has been entirely with the corporation. So far as I know, I know nothing about the Coca-Cola syrup.

Q. I hand you certified copies of a number of papers, filed in the Patent Office, and I ask you to look over them and state what they are, and refreshing your memory from these papers, just state the course by which the title of this syrup was acquired by the Coca-Cola Company, or the formula, rather, I should say.

A. Yes, I recall these papers now, since you have shown them to me.

Q. All right. Now, just state first who was the original inventor and what was the original name, and then how the title was transferred.

A. Doctor John S. Pemberton was the first man who ever had anything to do with this preparation.

Q. What did he call it?

A. Coca-Cola Syrup and Extract. That is, he had a label registered Coca-Cola Syrup and Extract.

Q. He transferred it to various persons, and then the title passed, as shown by these papers, to the Coca-Cola Company?

A. To the Coca-Cola Company.

Q. After the Coca-Cola Company acquired it, what change in the name was made—in the Coca-Cola Syrup and Extract—what did the Coca-Cola Company call it?

A. Simply Coca-Cola.

Q. Was that name registered in the Patent Office?

A. It was.

Mr. Miller: That is a matter of record. So far as the general title, we do not object to it if it is introduced for that purpose, but if it is introduced to justify the use of an adulterated mixture, the fact that a patent would be issued does not justify such use.

The Court: The trade-mark has already been proven so that it is unnecessary to prove it again.

Mr. Sizer: I was not undertaking to prove it.

BY MR. SIZER:

Q. You saw the trade-mark certificate, copy of which was introduced in evidence?

A. I did.

Q. Did you personally supervise the proceeding under which that trade-mark was obtained?

A. Yes, sir.

Q. Was there an interference proceeding in the Patent Office with respect of the right of the Coca-Cola Company to that name?

Mr. Miller: I object to that, I think that is thoroughly incompetent.

The Court: I sustain the exception.

Mr. Sizer: I am not undertaking to prove what occurred, or the certified copy. I simply want to show by Judge Candler that he conducted the proceeding—

The Court: (Interrupting.) I cannot see the relevancy of that.

Mr. Sizer: It is relevant for this purpose, in we say we have a distinctive name, and the fact that there was a proceeding in the Patent Office by which it was adjudged that the Coca-Cola Company was entitled to the exclusive use of this name, is, I submit, evidence bearing on the question of our right to that name, and the distinctive feature of it.

The Court: But the Government was not a party to that—

Mr. Sizer: That is true—

The Court: And I sustain the objection.

Mr. Sizer: Before you do that, I want to call your attention to an authority I have that is exactly in point.

The Court: I will hear it.

Mr. Sizer: We offer this simply to prove the fact that there was an interference proceeding in the Patent Office in which it was adjudged that the Coca-Cola Company was entitled to this name. Of course, that does not preclude as res adjudicata any one except those who were parties

to that proceeding, but it does have a bearing on the question of whether or not we were entitled to it.

Mr. Miller: We don't question that you were entitled to the name.

Mr. Sizer: Entitled to the exclusive use of the name and we offer the judgment for that purpose on this theory: (Reading)

> "Although a judgment is not admissible against strangers to prove the facts on which it is based, it is always admissible to prove the fact or time of its own rendition and its necessary legal consequences, so far as they affect the rights of others than the immediate parties. For this purpose it is not necessary to put in evidence the entire record; a transcript of so much of the record as will show the existence of the judgment and the time of its rendition will be sufficient.
>
> "It is generally held that, where no fraud or collusion has been shown in the recovery of a judgment, it is conclusive of the fact and the amount of the indebtedness of the judgment debtor, and cannot be collaterally impeached by third persons in a subsequent suit where such indebtedness is called in question. In an action by a judgment creditor against his debtor and the latter's grantee of land, to set aside the conveyance as fraudulent, the judgment is conclusive evidence against the grantor that he owed the amount of the debt when the suit was brought, and it is at least prima facie evidence of the same fact against the grantee"—etc.
>
> "Even against strangers, a judgment is admissible in evidence in evidence as prima facie, although not conclusive, proof of any fact which from its nature is provable by evidence of general reputation, such as the death of a person at or before a given time, or a question of pedigree, or color, or of freedom or slavery, or a right of ferry, or of free warren."

Here is a question that is a matter of general reputation as to our right to the use of this name and the exclusive use of it.

Now, we submit that this judgment is admissible, not as conclusive against the Government but as evidence of the fact that our right to this name has been established by courts of competent jurisdictions in proceedings between other parties.

The Court: I do not think it is admissible, really, but I do not think it is prejudicial to the Government if admitted and in order that the question may not be in the case I will allow it to go in.

Mr. Miller: We wish to go on record as objecting.

The Court: You may reserve your exception.

Mr. Miller: We don't want to consent to anything like this; we just want to say that whether there was an interference is not admissible at all.

The Court: I do not think it is, but it won't hurt anything to let it in.

Mr. Sizer: Right at this point I want to offer in evidence the certified copies of the transfers, commencing with the transfer of J. S. Pemberton to Willis Venable and George S. Lowndes, and then through various intermediate transfers down to the transfer to The Coca-Cola Company by Asa G. Candler. They are all in this same batch.

Then I want to offer in evidence certified copies from the Patent Office of the interference proceedings between a man named Kent and The Coca-Cola Company as to the right to the use of the name "Coca-Cola."

Mr. Miller: Do you say that shows there was an interference?

Mr. Sizer: Yes.

Mr. Miller: I thought you said there was not.

The Witness: Two, Mr. Sizer.

Mr. Sizer: This only relates to one of them. It seems that there was no proceedings in the Patent Office with respect to the others so far as I could find. This adjudges that as between Kent and The Coca-Cola Company that the testimony shows beyond any reasonable doubt that The Coca-Cola Company had adopted and used the name "Coca-Cola" as a trade-mark—

Mr. Miller: I object to that. That will show what it is.

Mr. Sizer: Then I will read. (Reading)

> "But while The Coca-Cola Company cannot avail themselves of a date earlier than June 28, 1887, the the testimony shows beyond any reasonable doubt that on said date the privies in title of the said company had adopted and used the symbol "Coca-Cola" as a trade-mark. It follows, therefore, that judgment as to prior adoption and use must be and the same is hereby rendered in favor of The Coca-Cola Company."

The Court: If the Government objects to that I don't think I will allow it. I did not think it was competent, but I did not think it was prejudicial, but if the Government insists I will sustain the objection.

Mr. Miller: Our objection does not go to the proof that there was an application granted.

The Court: I sustain the objection.

Mr. Sizer: In that same connection we desire to offer certified copies of judgments in various other cases, the

case of the The Coca-Cola Company and the Coca-Cola Bottling Company, Complainants, vs. E. B. Donald and H. G. Baily, in the United State District Court of South Carolina, Fourth Circuit.

Certified copy of a judgment in the Circuit Court of the United States for the Eastern District of Louisiana in the case of Coca-Cola Company vs. A. L. Pilsbury, Jr.

Certified copy of a judgment in the same court in the same case of The Coca-Cola Company against American Bottling Works.

Certified copy of a judgment in the Circuit Court of the United States for the Western District of Pennsylvania in the case of The Coca-Cola Company and Coca-Cola Bottling Works vs. E. S. Frishkorn.

Certified copy of a judgment in the Circuit Court of the United States for the Northern District of Illinois in the case of Coca-Cola Company vs. Max Jacobs and Henry Racusin and Ike Michalson, trading as the Western Bottling Works.

All of these judgments adjudged that The Coca-Cola Company is entitled as against the various defendants in the cases named to the exclusive right to the use of the name "Coca-Cola."

We offer these judgments for the purpose of establishing the right—the general right of The Coca-Cola Company to the use of this name and showing the extent to which its right has been recognized by the courts.

The Court: I shall rule this: To the extent that those judgments show that there was a contest between The Coca-Cola Company and other persons to the right to the use of this name, these judgments may be admitted, but to the extent of any recitals in the judgments as to the date when the Coca-Cola people began the use of this name or any recital of facts of that sort as distinct from the right to use the name as between the two litigents—as to that they are excluded.

The first one you offered had a good many recitals of the date when they began the use, etc., and I think those are not competent but the judgments may be admitted in evidence as showing the contest between the Coca-Cola Company and those other persons.

Mr. Sizer: Then we offer them for that purpose.

Mr. Miller: Note an exception.

Mr. Sizer: The first judgment I refer to is the case of Donald and Bailey. That was decided the 4th day of June, 1906. It confirms a report of a Master.

The Court: Just state the final result.

Mr. Sizer: The final result was the Master found and

reported to the Court that The Coca-Cola Company was entitled to the use of the symbol "Coca-Cola" as a trade-mark, and that the use by the defendants was spurious and that The Coca-Cola Company was entitled to a judgment against the defendants for the sum of $125.00 and costs.

The second judgment, in the Pilsbury case, adjudges that the preliminary injunction herein issued in favor of the complainants and against the defendant, enjoining the defendant from manufacturing, preparing, selling or supplying others for sale any drink, syrup or extract under the mark, symbol or name of "Ko-Kola" or other device identical with or like Coca-Cola, or from using any other name or device calculated to induce the public to believe that the drink, syrup or extract of the defendant is the same as Coca-Cola, be maintained and perpetuated, and that the demand for damages be dismissed as having been compromised and that the appointment of the Master herein, etc. ——

General Cox: What was the date of that?

Mr. Sizer: The 5th of January, 1907.

In the case against the American Bottling Works, a judgment was rendered on the same day and by the same court and is to the same effect.

In the case of E. S. Frishkorn in the Western District of Pennsylvania, a judgment was rendered on the 13th day of February, 1907, and it adjudges that the complainant, The Coca-Cola Company, is the owner and proprietor of a good and valuable trade-mark for beverages consisting of the term or designation "Coca-Cola," and that The Coca-Cola Bottling Works of Pittsburg, complainant herein, is the licensee for the said The Coca-Cola Company for the territory surrounding and including the City of Pittsburg, Pennsylvania, having an established business in operation for dispensing the beverage; that the appearance of their product when put upon the market is characteristic and as such recognized by the trade as the product of these complainants, and that the defendant is dealing in a bottled drink under the name of "Toca-Cola" and is infringing upon the trade-mark rights of the complainant—

The Court: The only thing in that competent is that the trade-mark was recognized. That is competent, but everything else is excluded on the evidential matters.

Mr. Sizer: I did not intend to read the evidential matters.

In the case in the Northern District of Illinois which was decided October 19, 1908,—that was a case against Jacobson Brothers and others trading as the Western Bottling Company. The Court adjudged that The Coca-Cola Com-

pany, complainant, was the sole and exclusive owner of a secret process for the manufacture of a certain beverage which, ever since complainant's incorporation and for a long time previously, has been and is termed and known by the name of "Coca-Cola," that said beverage has been generally and exclusively sold throughout the United States, including the State of Illinois, by its said trade name of "Coca-Cola," and that by virtue of its character and its long continued and exclusive use by the complainant and its predecessor in business, the said name "Coca-Cola" has come to signify in the trade that the beverage bearing said name is the product of the complainant—

The Court: That is all.

Mr. Sizer: Then the judgment proceeds—

The Court: I also admit the interference proceedings for the same purpose.

Gentlemen of the Jury, these are not admitted as evidence of any facts there recited as distinguished from the general fact in each case that The Coca-Cola Company had in this particular case asserted its right to the use of the the trademark and that it had been declared to have that right against the litigants. That is all it is admitted for now.

BY MR. SIZER:

Q. Since the organization of The Coca-Cola Company has this product been sold under this same name?

A. Yes, sir.

Q. Has it ever been sold under any other name?

A. No, sir.

Q. Has The Coca-Cola Company ever advertised it or offered it for sale or sold it as "Dope," or "Coke"?

A. Never.

Q. Now, Judge, does this syrup as put on the market contain as one of its ingredients a substance known as "Merchandize No. 5"?

A. It does.

Q. Originally—that is, at the time The Coca-Cola Company commenced to manufacture and sell this syrup—where was that particular substance manufactured?

A. Manufactured at their home plant in Atlanta originally.

Q. Now, later on was any change made by which that particular substance was manufactured by some other person, and if so, what change?

A. Later on a contract or agreement was made by which it was manufactured by the Maywood (N. J.) Chemical Works.

Q. For what reason was that change made in the manu-

facture of that ingredient?

A. That particular company could manufacture Merchandise No. 5 better than we could.

Q. Since the date of that contract has that Merchandise No. 5 been manufactured by the Schaeffer Alkaloid Works?

A. It has.

Q. When was it that The Coca-Cola Company first began to manufacture a syrup for bottling purposes?

A. My best recollection is in 1898.

Q. Prior to that time had they been manufacturing the syrup exclusively for use in soda fountains?

A. Yes, sir.

Q. Now, after it commenced to manufacture for bottling purposes, was it found necessary to make any modification of the ingredients in the mixture, and if so, what modification was made?

A. For several years after the bottling rights were disposed of, I think possibly eight years after, it was sought by the parties owning and controlling the bottling privileges—

Mr. Miller: Do you purport to speak for one of these parties who owns the right, or just what they related to you?

The Witness: Well, from conferences with them, and with my own Board of Directors together, conferences with both of us.

Mr. Miller: I object to your stating what other people have said, who were supposed to own the bottling rights.

The Court: He may state the ultimate fact.

The Witness: I represent all those companies, both the bottling companies and The Coca-Cola Company, and I can really speak for all of them, I am the attorney for all of them.

BY MR. SIZER:

Q. Without going into details of those conferences—I don't care for that—you can state whether as a result of these conferences what modification, if any, was made.

A. Well, the syrup was made slightly heavier for bottling.

Q. What do you mean by "slightly heavier," what particular ingredients?

A. More sugar in it,—sweater.

Q. As a result of that was the proportion of any other ingredient in the mixture as furnished for bottling purposes, changed?

A. No, sir; except the result of that would be that there was less of caffeine.

Q. A less percentage of caffeine?

A. Yes, sir; in the bottling product than in the soda fountain product, slightly,—but less.

Q. Can you state what that change or per cent. was, as to how much more sugar was put in the bottling syrup and how much less caffeine?

A. Not accurately, I could not; I know the general fact.

Q. After that change did the company still continue to manufacture fountain syrup in exactly the same way they always did?

A. Yes, sir; exactly—absolutely no change in the syrup for the fountain.

Q. Do you know what the particular reason was for increasing the amount of sugar in the bottlers' syrup? Why they wanted to do that?

A. There were two reasons for it, as I recall. The first reason was, probably the dominant reason, was that they wanted a heavier and sweeter syrup; and another, all Coca-Cola syrup for bottling—I mean for soda fountain use—is sold to wholesalers and others with the limitation that it is not to be bottled, that it cannot be sold to bottlers.

Q. So that by adopting this modification a slight difference was made between the bottlers' syrup and the fountain syrup?

A. Yes, sir; in that case if unauthorized bottlers got hold of syrup that was manufactured to be sold at the fountains, we could readily detect it and protect the bottler.

Q. You sold the exclusive privilege of bottling the syrup to certain individuals?

A. Yes, sir; who live here in Chattanooga, and agree to protect them in that right. I said "sold," it was an agreement made.

Q. In that respect?

A. Yes, sir; for the exclusive privilege of bottling.

Q. As the name of this trademark appeared on the label and advertising matter, is it or not a facsimile of the trademark and name as it appears on the trade-mark?

A. It is.

Q. Are you familiar with the building in which the manufacture of this syrup was carried on in the year 1909?

A. Yes, sir; I am thoroughly familiar with that building from the time it was built until now.

Q. What is the size of that building, how many floors has it?

A. It has a basement and three floors.

Q. Three floors above the main one?

A. Yes, sir.

Q. How many of these floors were used in the manufacture of the syrup?

A. Two, the basement floor and the ground floor.

Q. What were the other floors used for?

A. The next floor was for the offices of the building, my office, my chambers as Judge, were on that floor.

Q. You kept your Judge's chamber in that building on the floor immediately above the first or ground floor?

A. Yes, sir, and as Vice-President of the Company afterwards—my brother was away a large part of the time, and for his convenience and my accommodation, my offices, they were in that building in 1898, where I kept my library.

Q. Was that building erected by the Coca-Cola Company?

A. Yes, sir.

Q. Was it or not a building up to the standard?

Mr. Miller: I object to that.

The Witness: It was what we call mill construction.

Mr. Miller: I object to that characterization of the building; if he wants to state, let him state how it was built.

BY MR. SIZER:

Q. Perhaps that question was a little leading. State how that building was constructed and what character of construction it was.

A. It is known as a mill construction building; it is built of brick and trimmed with marble, and the floors, they take—you want a description of them?

Q. Yes, just in a general way.

A. Well, take the basement—and the next floor—these are the manufacturing floors. The floor of the ground floor, the floor between the basement, consists of a very heavy flooring laid with—we will say laid this way.

Q. Diagonally?

A. That was a heavy three-inch plank splined—it is not tongued and grooved. The floor was splined.

Q. Well, explain what that is?

A. I am not an architect or a builder; I know what it looks like and I know what it is; I suppose these gentlemen (The Jury) probably know what a splined floor is. In every way it was heavy stuff, and they drove it—it is tongued, I suppose a carpenter would say, and you drive the pieces through between it so as to tighten it and join the two pieces together. Then across that floor there was another floor—that floor runs this way (indicating.)a heavy three inch stuff, thick, and then across that floor there is laid right across it another floor of regular flooring tongued and grooved.

Q. Could any water or other substances get through that floor from the ground floor down to the basement?

A. There could not, it was a water-tight floor.

Q. Now, after the streets surrounding that building, how were they paved, it at all, with what material, if at all?

A. The street on what is known as Coca-Cola Place—now, that would be the west side—the building was built small at one end.

Q. Sort of a flat-iron shape?

A. Yes, sir; it was built at the junction of what is known as Coca-Cola Place and Edgewood avenue, the two, the two streets coming together, the Coca-Cola Building, that is the building we are now talking about in 1909 came to the end—I suppose a part of it would have been possibly a frontage of, we will say, twelve or fifteen feet, then it widened out as it went down Edgewood avenue this way, and Coca-Cola Place, and the streets gradually widened which made it, you might say, a three-cornered building.

Q. What kind of pavement, if any, was on these streets?

A. My recollection is that on Coca-Cola Place, that the street was paved with chert; on Edgewood avenue with wooden blocks.

Q. Now, since the date of the seizure, has the Coca-Cola Company built another—

Mr. Miller: I object to that, if your Honor please, that is not competent.

The Court: The objection is sustained.

BY MR. SIZER:

Q. I want to know if you personally know this Coca-Cola syrup, have you ever drank it or used it?

A. Yes, sir; for some twenty-five years. I drank Coca-Cola in fact before the Coca-Cola Company ever owned it.

Q. How much of it do you generally drink in the course of a day?

A. Oh I have no regular quantity; sometimes I drink it whenever I want it and whenever I feel like I want it, and whenever I want it—sometimes I take a glass a day and I drink as much as half a dozen, have drank as much as much as a half a dozen in a day.

Q. Has it ever produced any appreciable effect on you?

A. Well, I am not a Doctor, I don't know, I do feel good all the time.

Q. Has it ever hurt you?

A. Well, as I say, I don't know. If it has, I don't know it.

Q. Has your health been good during the twenty-five years you have used it?

A. I think since the 16th of January, 1885, I have been in bed twice from grippe each time. With that exception,

I have not been sick since the 16th day of January, 1885.

Q. Do you drink tea and coffee?

A. Yes, sir; I drink a cup of coffee, have all the days of my life, at my breakfast.

Q. Do you drink tea sometimes?

A. Yes, sir; I drink tea in the summer, about two glasses of iced tea every night at my last meal, and in the winter time, I take it hot the same way.

Q. Have you observed the use of Coca-Cola has had any tendency to form a habit with you?

A. No, sir; there are times I am where Coca-Cola is not and I don't get it for a month.

Q. Do you experience any inordinate craving for it or any particular desire for it when you are where you can not get it?

A. No, sir; I have not had but one glass of Coca-Cola since I have been here.

Q. Now, there is one thing I want to ask, about the water closet on the manufacturing floor of this building.

A. There was no water closet on the manufacturing floor of this building.

Q. Was there any on the first floor?

A. Yes, one.

Q. And how was that water closet ventilated?

A. Through the roof, under the city building laws.

Q. You mean that a pipe led from the closet up to the roof of the building?

A. Yes, sir; and out through the roof.

Q. Out through the roof?

A. Yes, sir.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION, BY MR. MILLER:

Q. Judge, you say that Merchandise No. 5 was originally made by the Coca-Cola Company or by its predecessor?

A. Well, my memory is I didn't say anything about its predecessor, that I don't know, it was by the Coca-Cola Company.

Q. You were a Director in that Company?

A. Yes, sir; and I am now, or I was up to 1906.

Q. You are counsel for it?

A. I am counsel for the Company now.

Q. You were at the time of the manufacture of Merchandise No. 5?

A. Yes, sir; partly—and partly not—ten years I was on the Bench I didn't represent the Company as attorney.

Q. You were also a stockholder in it?

A. I am.

Q. I say you were then?
A. Yes, sir.
Q. And have been from the beginning?
A. Yes, sir.
Q. When they manufactured Merchandise No. 5?
A. Yes, sir.
Q. And you were intimately acquainted with the members and Directors and stockholders of the Company that manufactured Merchandise No. 5?
A. No, sir; not with the Company that manufactured Merchandise No. 5 now.
Q. Well, I don't mean now; I say at the time it was manufactured by the Company in which you were interested, and of which you were a director and for which you were counsel?
A. Yes, sir. Now, what was the first part that you asked there?
Q. Whether or not at the time Merchandise No. 5 was manufactured by the Company of which you were a director and for which you were counsel, you were intimately acquainted with the members of the Directorate and the stockholders in that same Company?
A. I was, yes, sir.
Q. Where was your office at that time with regard to the building of the Company, that is, when they manufactured Merchandise No. 5, was that in the same building?
A. From 1898 my office was in that building.
Q. This same company during a portion of that time manufactured Merchandise No. 5?
A. Yes, sir.
Q. Now, then, tell what was in Merchandise No. 5.
A. Mr. Miller, I am not a chemist, I don't know, I just know in a general way. I know there was used to make it alcohol, I know there was used to make it, cola nuts; I know there was used in the manufacture of it, coca leaves.
Q. Did you know the process of the manufacture?
A. I could not say, I don't know as I could tell you that accurately at all, I am nothing but an A. B. graduate in chemistry, only just like they teach it in ordinary colleges.
Q. Tell us if there was any cocaine in it at that time.
A. As far as I know, none.
Q. You say so far as you know?
A. Yes, sir.
Q. Well, that means you don't know anything about it?
A. No, sir.
Q. Does it mean that at all?
A. Well, it means just what I say, that so far as I know, there was none in it, there was no purpose to have any in

there.

Q. I am not speaking about the purpose.

A. Well, all right.

Q. I want to know, you are a distinguished jurist, who has been on the Bench, and I want an answer to this question—are you prepared to say whether there was or was not cocaine in that mixture?

A. I am not prepared to swear whether there was of my own knowledge, not being a chemist.

Q. Well, if you are not prepared to swear that cocaine was not in the mixture at that time, how are you able to say that Merchandise No. 5, which was then used in this composition, was the Merchandise No. 5 that was contained in this mixture at the time it was seized here?

A. I know it in this way—I know what the agreement about it was—I know—

Q. All right; proceed.

A. I know, of course, all the consultation about it—I know how it was manufactured, and I think I can say that with the exception of the fact that the manufacturers now are different manufacturers than the Coca-Cola Company, that there has been no change—there has been on the part of the Coca-Cola Company no purpose to have any change—

Q. (Interrupting.) It is not the purpose I am asking about. It is what the components of Merchandise No. 5 were at the time when you were connected with it, at the time your company made it, and I understood you to say that you did not know whether there was then or was not any cocaine in it.

A. I could not say, I could not swear one way or the other, whether there was or was not a trace of cocaine in the syrup as they manufactured it, of my own knowledge, that is what I mean to say.

Q. Now, if you could not then state whether cocaine was in it or not, assuming that there is no cocaine in the manufacture as disclosed now, you could not say then, of course, if the Merchandise No. 5 then used was identical with what is now used?

A. Not being a chemist, I could not say whether it is or not, of my own personal knowledge, always.

Q. As a matter of fact, in a controversy between Henry A. Rucker, as Collector of Internal Revenue, and the Coca-Cola Company, which was carried to the United States Court of Appeals, in New Orleans, and which arose in the Northern District of Georgia, and which I have no doubt you are familiar—

A. (Interrupting.) Perfectly so.

Q. I will ask you if it was not adjudged there was cocaine in the mixture?

A. It absolutely was not.

Mr. Sizer: Now, I object to that.

The Witness: There was not—I beg your pardon, Mr. Sizer, for answering the question.

BY MR. MILLER:

Q. Please tell us why you say it was not—were you present when the judgment was rendered?

A. I was practically counsel in that case all the way through it.

Q. Does your name appear as counsel in the case?

A. I think not—the reason of that was, it was while I was Judge, at the time I was on the Bench, but I assisted in the trial of that case all the time, because I was a party to the case, you might say.

Q. Did you testify in that case?

A. Yes, sir

Q. Were you present when your brother, Asa G. Candler, testified in that case?

A. Possibly yes, I think I was.

Q. Didn't he distinctly state in your presence in that case when testifying, that there was cocaine in the mixture?

Mr. Sizer: Now, I object to that.

The Court: The objection is sustained.

Mr. Miller: We respectfully note an exception.

BY MR. MILLER:

Q. Now, you are now interested in the Coca-Cola Company, you say?

A. Yes, sir.

Q. You are a stockholder in it?

A. Yes, sir; I am.

Q. And you are not prepared to say what the formula for the making of Coca-Cola is now?

A. No, I am not.

Q. And therefore you don't ——

A. (Interrupting.) I mean to say I could generally tell—I don't suppose even if I could, the Court could require me to tell the exact formula.

Q. You have stated you could not tell what that formula was?

A. Not exactly, I could not.

Q. And you don't pretend to state whether or not the regular formula was followed in making this product which was seized and is under investigation in this case, do you?

A. No, I didn't manufacture it.

Q. And you are not prepared to state whether or not that formula has been changed, barring the change in the bottling and the fountain syrups, as you have testified to there during the last few years, are you?

A. I think I am Mr. Miller, yes, sir.

Q. Well, you stated a while ago you were not—you could not say whether there was cocaine in Merchandise No. 5 as your company manufactured it, and if you are not prepared to say whether there was cocaine in it then, I ask you if you are unable to state if there has been any change in the formula?

A. Mr. Miller, this is the fact about it — of course, I have been a director of that company up to 1906—I have been its attorney since, I am with its Board of Directors all the time, next to its largest stockholder; I don't believe a change would be made in that formula without my having some knowledge of it, of its being done.

Q. Well, that is not the point.

A. That is all I can say—I am not a manufacturer.

Q. Well, when you were on the Bench you didn't take as testimony what people believed but you took what they knew about a thing.

A. I very often took what they believed.

A. You very often did that?

A. Yes, that is often admissible evidence.

Q. Well, you have heard counsel on your side of the case strenuously object to what people believed, during this trial?

The Court: I have ruled on the questions.

BY MR. MILLER:

Q. State without reference to your belief if you state that this formula has or has not been changed since 1898.

A. It has not been changed within my knowledge.

Q. That means that you do not know whether it has been changed or not.

A. If it has been I know nothing of it and I stated further that I would have known it had there been any change.

Q. That does not mean, however, absolutely that there has been no change?

A. I means what I say; the jury can weigh it for what I say, no more and no less.

Q. Well, that means that there has been no change so far as you know?

A. Yes, sir.

Q. That means if there has been any change you don't know anything about it.

A. Yes, sir; it means that, and taken in connection with my connection with the company and all its business—

Q. About this floor that you testified to. Was that both floors of this building, now, the basement floor and the first floor of the building, that you mentioned?

A. The first floor was the one I undertook to describe.

Q. You did not undertake to describe the basement floor?

A. No, sir.

Q. Oh, well,—

A. Well, I will undertake to do it.

Q. Just describe it.

A. The basement floor, as I recall, was a cement floor.

Q. Was a cement floor?

A. Yes, sir.

Q. Where you had this double floor you were talking about was entirely a different floor?

A. That was the ground floor on which this first syrup was you have talked about, where the kettle was placed.

Q. But after that was done,—that is, after the syrup was put into the kettle where it was, placed over in one corner of that floor, then it was conducted by a pipe down into the basement?

A. Yes, sir.

Q. And down there is where the cooling tanks were in which this mixture was cooled?

A. Yes, sir; in the basement room; they were suspended by cranes from the floor.

Q. What character of floor was that?

A. My recollection is a cement floor—concrete, I think is the name probably.

Q. Concrete?

A. Yes, sir; a concrete floor.

Q. Judge, you have seen the process of manufacturing or mixing of this Coca-Cola syrup going on for years there?

A. Yes; just walking through the factory I saw it; I have never been connected with the manufacture of the syrup.

Q. Well, you know enough about it to tell us whether or not any caffeine is put into this mixture?

A. I think it is the very first thing that goes into it,—is the caffeine.

Q. That is put up in drums?

A. Yes, sir.

Q. And these drums or tin cans, as the mixing takes place in the kettle, why, then the caffeine is dumped into that mixture?

A. No, sir.

Q. How do they put it in?

A. The caffeine is the first thing that goes in,—the water is the first thing and the caffeine is next.

Q. You say the water is the first thing and the caffeine is next?

A. Yes, sir.

Q. How is the water put in?

A. My recollection is that the water—as to the heat of that water—well, I don't know.

Q. It is immaterial about the heat.

A. Well, the first thing that goes into that kettle is the water.

Q. What amount of water, a large quantity, several hundred gallons?

A. I would say so, yes; I don't recall the number of gallons.

Q. All right. What next goes in?

A. The caffeine.

Q. Where is that caffeine procured from?

A. Well, I think possibly all the caffeine that the Coca-Cola Company uses is purchased from the Rennschler & Hasschler Company of New York, and from John F. Queeney of St. Louis.

Q. And it comes there in these tin cans or drums which Mr. Lynch and Doctor Kebler have described?

A. Well, the two companies put it up differently. I am not certain which is which, I just have a recollection about it, that they ship it in different shapes, I don't know which.

Q. One ships it in a smaller receptacle than the other?

A. I don't know which is which; there is a difference.

Q. And after that is done then a quantity of caffeine is taken out, and when that is taken out what kind of a receptacle is it taken out and put in when it is taken out first?

A. I don't know; I don't understand you.

Q. Well, you take it out of the drum, you take the caffeine out of the drum and dump it into the kettle or not?

A. I can't say that I ever saw that done; I don't recall ever having noticed particularly. I have walked by them and seen the thing, but to say that I can tell you accurately, just how, I cannot.

Q. You do not know, then, whether the quantity of caffeine that is put into the kettle, into this mixture, is accurately weighed or guessed at, do you?

A. I think I could say that it is absolutely weighed and measured; I would not want to say so because I don't absolutely know.

Q. I understood you to say that you did not understand——

A. (Interrupting.) I would not state positively that that is a fact.

Q. And when you say you think you can state, do you merely mean that you believe that is the way it is done?

A. I have noticed it—I have never paid any very careful attention to it and I would not like to say——

Q. Well, it goes in as caffeine, it is put in as caffeine, pure caffeine, not as citrate of caffeine, but it goes in as caffeine, that is right?

A. Yes, sir.

Q. It is put in as caffeine?

A. Yes, sir, put in as caffeine.

Q. And then that is added to the water, and then what comes next?

A. The sugar.

Q. And when does the coloring matter go in?

A. My recollection is I think that the coloring matter follows the sugar, I think it does.

Q. What does that coloring matter consist of?

A. Burnt sugar.

Q. What some of the witnesses have described here as "burnt caramel"?

A. I think possibly so. I don't know whether there is any difference between caramel and burnt sugar; I have always known it was burnt sugar, it is a black syrup.

Q. Now, when did your connection with The Coca-Cola Company as it now exists, commence?

A. When it was born.

Q. That is, when?

A. That is, from its very beginning.

Q. You have been connected with the manufacturers down there, or with the claimant, The Coca-Cola Company, in this case ever since the claimant company was organized?

A. Yes, sir; that is right.

Q. And you have been interested in it as a stockholder?

A. Yes, sir.

Q. And your brother is the president of it?

A. Yes, sir.

Q. And your nephew is the vice-president now?

A. Yes, sir.

Q. Now, about this suit that your company has had, isn't it a fact and don't you know that they had one over at Memphis the other day against a company over there which Judge McCall dismissed, — that is, The Coca-Cola Company was making a controversy about it and Judge

McCall dismissed it?

A. There is a record about it, but that is not true, if you asked me that.

Q. (Interrupting.) Don't you know that your company lost that case on all points?

A. On the preliminary injunction only — we are fighting it very vigorously and expect to keep it up.

Q. You lost in his court?

A. On the preliminary injunction only.

Q. Well, you failed to get an injunction?

A. We didn't get a preliminary injunction against the Gayola Company, it is a totally different sort of case to this one — I mean, to the sort of case we have had here — there is no question of trademark involved in it.

Q. Now, your office in this building was on the second floor — I mean, on a higher floor than where this manufacturing took place?

A. Yes, sir; on what was known as the office floor was where my offices were.

Q. What was the output in gallons of the Coca-Cola Company in 1909 at the Atlanta factory?

A. My memory — from memory I could not tell you accurately at all. Mr. Howard Candler can give you that information. He can give it to you accurately; I can not.

Q. Now, you state when you feel like it you get a drink of Coca-Cola, when you feel like you want a drink you go and get it. What kind of feeling induces you to go and get Coca-Cola?

A. The same feeling that I want to take a drink, I see it handy, like the taste of it and take it.

Q. Then also the effect of it, too — you don't mean to say you drink whisky because you like the taste of whisky?

A. Alas for me, I do like the taste of it. It is all good; some is better than others.

Q. We will quite agree with you up here on that, but isn't it a fact, however, that you go and drink Coca-Cola for the effect, isn't that the fact, that you drink it for the effect?

A. I don't know. I suppose, Mr. Miller, to be entirely candid with you I might tell you — I will tell you just how and you con infer any feeling that you want to — I am an early riser and have an early breakfast. All my life I have been accustomed to eating a light breakfast. I will have some fruit, a cup of coffee and a biscuit, and a little cereal, and that is all I want. My girl goes to school and I have always wanted to see her three times a day. And she does not get out of school until three o'clock and we do not have dinner at my house at dark but have it at two

o'clock in the middle of the day, — I always want to see my child at dinner. We have dinner at two o'clock and I have breakfast at seven, and at eleven o'clock I get sort of a habit of going down to the soda fountain, about eleven o'clock, and having the soda fountain man to make me up a glass of Coca-Cola with lithia water and a little lemon juice, and I take it, and the empty feeling is gone and I can go without feeling hungry or empty until two o'clock. At two o'clock I can't sometimes go, and I go down to that fountain and I have the man to take an ounce of Coca-Cola syrup and a raw egg and some Horlick's Malted Milk, or sweet milk, and put that in one of these large milk shake glasses, and I take that for my dinner and I don't eat anything when I do that until I go home for supper.

Q. So that it is when you have a sense of discomfort, why, you go and take a Coca-Cola?

A. When I have a sense of a sort of emptiness, when I feel like I need something to tide me over.

Q. To tide you over?

A. Yes, sir; until I can get something to eat.

Q. To stimulate you, and you go and get Coca-Cola?

A. As I have given it to you, that is the way I drink it, as I have told you.

Q. Where did your company get this coca that was used in your process?

A. Where did they get it?

Q. Yes. In 1909.

A. My recollection is probably——

Q. October, 1909.

A. You mean Merchandise No. 5?

Q. Well, if you used any coca in it or if you used Merchandise No. 5——

A. Merchandise No. 5, it was manufactured by the Schaeffer Alkaloid Works.

Q. Do you know what the contents of Merchandise No. 5 was in 1909, in October, at the date of October in this seized mixture?

A. I don't know that I could swear about it, I only know from hearsay what is in it. I don't know of my own knowledge.

Q. You were asked by counsel if you had any inordinate craving for Coca-Cola, or if you had a craving for Coca-Cola, and by that you mean to understand a craving of the same kind as for morphine or something of that sort, that becomes a regular habit, you understood that to mean that, "iordinate craving"?

A. I never had any inordinate craving in my life.

Q. Well, you know what the words "inordinate craving" implied to you, what you understood by them.

The Court: I think that is obvious to the jury.

The Witness: Yes.

BY MR. MILLER:

Q. Now, there was a judgment in that case that I inquired about between the United States Government and Mr. Rucker ——

A. (Interrupting.) Yes, sir; we obtained judgment.

Q. And that was in the United State Circuit Court of Appeals at New Orleans?

A. The judgment was affirmed by the Court of Appeals. We obtained judgment in the United States Circuit Court for the Northern Division of Georgia. There were two of those cases and both were affirmed by the Circuit Court of Appeals at New Orleans.

Q. Now, I pass you a copy and ask you if you recognize that as a copy of the proceedings in this case.

A. I would not undertake to swear it is a true copy of it; it purports to be a transcript of the record in the United State Circuit Court of Appeals, the Fifth Circuit, in the case of Henry A. Rucker against The Coca-Cola Company, that is what it purports to be.

Q. That is The Coca-Cola Company against Henry A. Rucker?

A. No, sir; I read it like it is.

Q. In the appeal?

A. The record was when appeal——

Q. (Interrupting.) Just look at the case as it was appealed and see how it is styled, Judge.

A. Well, it appears here: "Coca-Cola Company against Henry A. Rucker" — on this side: "Henry A. Rucker, Plaintiff in Error against The Coca-Cola Company," and that is the truth.

Q. It was printed wrong when that was put there?

A. Yes, sir; most of these records are, they have a great many mistakes in them.

Mr. Miller: Well, that is all.

RE-DIRECT EXAMINATION,

BY MR. SIZER:

Q. Do you know whether or not any change was ever made in the formula of Merchandise No. 5 at the time The Coca-Cola Company ceased to manufacture it in Atlanta, Ga., and Doctor Schaeffer or the Schaeffer Alkaloid Works

were employed to manufacture it for that company at Maywood, N. J.?

A. My knowledge is only as stated, both on direct and cross-examination, so far as I know there was none — is all that I can say.

Q. Did you or did you not have anything to do with the making of the contract with Doctor Schaeffer?

A. Well, I discussed the matter with Doctor Schaeffer in connection with my brother.

Q. Was he employed, Judge, simply to make Merchandise No. 5 according to its formula, or was he employed to make any change in it?

Mr. Miller: I object to that, how he was employed. We are inquiring here as to what was in Merchandise No. 5.

The Court: The exception is sustained. The witness has stated that no change was made so far as he knows and that he was not prepared to state what there was in it of his own knowledge before and when it was made by The Coca-Cola Company.

BY MR. SIZER:

Q. Has this Merchandise No. 5 — I mean, as it was made before Doctor Schaeffer took up the manufacture of it, do you know whether there were used decocanized leaves in the preparation of it?

A. My knowledge would be just the same on that — that was my understanding it was, but I don't know.

Mr. Miller: (Interrupting.) I object to that.

The Witness: I could not state.

The Court: The exception is sustained.

Mr. Sizer: We note an exception.

BY MR. SIZER:

Q. That Memphis case Mr. Miller ask you about, state what that suit was or whether or not, in other words, that involved the trademark right of The Coca-Cola Company, The Coca-Cola Company's right to this trademark.

A. Not in any way.

The Court: He said it did not.

BY MR. SIZER:

Q. Did you see this label bearing the picture of the leaves and nuts that is attached to some of these barrels, introduced in evidence here?

A. Yes, sir; I see it now.

Q. On that keg there before you?

A. Yes, sir.

Q. Do you know, Judge, whether that barrel with the label on it, goes only to the wholesaler or does it go to the

consumer of the Coca-Cola?

A. The Coca-Cola syrup is sold, of course, — it is sold to be manufactured into a drink.

Q. And this label is put on the barrels as they are sent to the wholesaler dealers?

A. Yes, sir; that is right.

Q. Or the bottler, as the case may be?

A. Yes, sir.

RE-CROSS-EXAMINATION,
BY MR. MILLER:

Q. These labels all go to the persons to whom shipped; that is, they go with the package through transit in interstate shipments?

A. I take it they are put on every barrel of Coca-Cola.

Q. Your company manufactures Coca-Cola syrup that is used for bottling?

A. Yes, sir.

Q. I will ask you if you recognize that as the usual top that the bottle is covered with and the insignia on the top of the bottle that is used under the supervision of your company for that purpose — you say it protects the bottlers in those rights?

A. Yes, sir; I think that is true.

Q. I will ask to put that in evidence as Exhibit No. 1, I will ask you to do that, to your deposition.

A. Yes, sir; that is known as the Crown Cork which goes on every bottle of bottled Coca-Cola, as prepared for drink.

BY MR. SIZER:

Q. Does the Coca-Cola Company put these things on the bottles?

A. They do not.

Q. Does the Coca-Cola Company have anything to do with putting that top on the bottles?

A. No, sir.

Mr. Sizer: I submit the tops may be put on the bottles by bottlers, that is not competent evidence against the claimant.

The Court: What is the point of that?

Mr. Miller: It was brought out in chief that the simple name as used by this company and likewise, as shown by its trademark, it was put on every bottle of this mixture, and in many of these cases which Mr. Sizer read——

The Court: (Interrupting.) I understand that. What has the label on the bottle got to do with it?

Mr. Miller: I have introduced the top there and I have some samples here I desire to introduce.

The Court: I see you have introduced the top, but what has that to do with it?

Mr. Miller: To impeach the contention of the claimant in this case——

The Court: In what regard?

Mr. Miller: In what regard?

The Court: Yes.

Mr. Miller: To show that the hyphen was not put between those words in the exhibit of their trademark which they propose to testify shows that it does not contain that word — trademark, — as their trademark shows.

The Court: I overrule the exception.

Mr. Sizer: I desire to except to that, it not having been sold by The Coca-Cola Company, — that company has had nothing whatever to do with it, and these tops, they go on the bottles into which the syrup is put — the company has nothing to do with that.

The Court: I understand the exception.

Mr. Sizer: We note an exception.

BY MR. MILLER:

Q. I ask you to examine these labels and state whether or not that is the characteristic label that is put on the bottles about which you were asked in chief.

A. Yes, sir; that is the label that is supposed to be put on the bottle by the bottlers.

Q. File that as Exhibit No. 2 to your deposition.

A. All right, sir.

Q. That signature there, "Asa G. Candler, President," is a facsimile of the signature of the president of this company?

A. Yes, sir; that is right.

Q. Contained on this label, Exhibit No. 2 to your deposition?

A. Yes, sir; that is right.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. With respect to these bottles, are you prepared to say that all the bottles of the bottled syrup are put up with that kind of a top?

A. I know nothing about that.

Mr. Miller: He is cross-examining his own witness, your Honor please.

The Court: I think he is asking him whether he knows anything about — I don't see any cross-examination as to whether this is the typical top or whether all of them are like that or not. The witness does not know anything about it; I overrule the exception.

BY MR. SIZER.

Q. You don't know whether the tops, as put on the bottles——

A. (Interrupting.) Our company does not furnish these tops and has nothing to do with it.

The Court: I should say that I admit that testimony in connection with the contention of the defendants as to distinct use—I think that its bearing on this question, the way in which it is commonly bought by the consumer, has a bearing on the question of distinctive use, the meaning of the word which has acquired distinctive use.

BY THE COURT:

Q. Are you prepared to say of your own knowledge as to the constituents of the ordinary bottled syrup? I do not recall any evidence as to that. I mean, how much of the syrup and how much of the carbonated water and how much of the syrup is in the ordinary bottle?

A. One ounce of syrup to seven ounces of carbonated water is the agreement between the bottling company and The Coca-Cola Company.

Q. That is the standard?

A. Yes, sir.

Q. But it is of slightly thicker syrup?

A. Yes, sir; that is true.

Q. And that makes a drink of Coca-Cola?

A. Yes, sir; as bottled.

Mr. Miller: That is under an agreement, that is, between the bottler and the Coca-Cola Company? That is, if the bottler lieves up to it?

The Witness: Yes, sir.

BY MR. MILLER:

Q. And that is an agreement with your company?

A. Yes, sir.

Q. And your company permits the use of this trade name or trademark as shown on this top and likewise on the label which you have filed as Exhibits 1 and 2, and the facsimile of your president's signature?

A. (Interrupting.) I don't know — I have never seen a top of that kind — my attention was never called to it, but it is done generally with our consent so far as I know anything about it.

Q. I will ask you whether or not this is permitted by your company to these bottlers throughout the country.

A. As to that label I can state unhesitatingly, yes. I know about that label. I have seen that label often, and that label is used all the time and used with my knowledge.

Whether it is with the knowledge of anybody else or not, I don't know, but I know all about it.

Q. It is not true that your company has, in various of these suits, endeavored to protect the bottlers in the use of this top and label?

A. No——

Q. (Continuing.) — and was not that very distinct question involved in the cases of which Mr. Sizer submitted a summary this morning?

A. We have always in every instance undertaken to protect the authorized bottlers of Coca-Cola in the bottling of genuine Coca-Cola syrup, and wherever any one to our knowledge has undertaken to bottle anything else and call it Coca-Cola, where they were not authorized bottlers of Coca-Cola, we have to the utmost of our ability undertaken to protect the bottlers.

Q. I apparently did not make myself clear. Is it not true that your company has undertaken to protect these bottlers in the use of this trade name and trademark?

A. In the use of the trademark — our trademark, yes. If they have changed it in any way, we know nothing about it and it has never been brought to our attention.

Q. At least it has in this trademark, Exhibit No. 2 to your deposition?

A. That particular trademark I have seen, and they have used that to my knowledge. I have known about it all the time.

Q. And your company has all the time undertaken to protect that?

A. Wherever any one has undertaken to infringe upon their rights, we have undertaken to protect the bottlers all the time.

Q. As far as you know, this top is used customarily, as you said a while ago, on top of the bottles after the contents were bottled?

A. I have never noticed the top sufficiently to tell you whether that was true or not. Whether they used more than one sort of top, I cannot tell you. I rarely see the bottled goods at all. I never see it except in Atlanta, and I used to go down to the bottling works in Atlanta and drink their bottled product down there.

Q. Then, of course, you don't know what is put into the bottled mixture.

A. No, sir; I did not stand there and watch them to see that they did it all the time the same way.

Mr. Sizer: I submit that that top has not been sufficinetly identified as the top used on this bottled Coca-Cola, even if the top used by the bottlers would be testi-

mony against us.

The Court: I think the witness has identified it.

Mr. Sizer: He says he had never noticed the top sufficinetly to state whether this was in their exact form or not.

The Court: Whether it was in the form that all bottles were put up in, but he did identify it as one of the forms.

The Witness: I meant to identify it as — not as prepared by the Coca-Cola Company but a corn cork. I know the use of corn cork on these bottled goods, but I could not say of my own knowledge whether this is one.

The Court: If the witness does not know of his own knowledge exactly what cork was used, that would be excluded.

Mr. Sizer: I am going to ask about that now.

BY MR. SIZER:

Q. Do you remember that you ever saw one of those bottle tops similar to the one presented here in which the hyphen between the words "Coca" and "Cola" was omitted?

A. I never had my attention called to that. I do not recall that I ever saw one either way. I never noticed that corn cork closely. I do not know anything about it.

Mr. Sizer: Now, I submit, Your Honor——

The Court: I exclude that, not the label but the cork—

The Witness: No, I know all about that label. There is no question about that. I have seen that many times.

The Court: There should not be any difficulty in this case in finding out exactly the tops used.

Mr. Sizer: No, sir; we will show exactly about that.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What do you mean when you stated in chief that this was the top.

A. It was handed to me and I saw Coca-Cola on it and never noticed it and I said that is the corn cork that goes on Coca-Cola.

Q. Did you not state in that same connection after looking at the name as it appeared on that top and studying it, that that was the characteristic trademark, or facsimile of it, that appeared on the Coca-Cola bottles, and was not that the question that was asked you?

A. I don't think I went into details of it to that extent. I answered the question just off-hand, yes, this the Coca-Cola bottle top.

Q. And you had the top before you in your hands?

A. I just glanced at it and saw the red Coca-Cola that

is before my eyes all over the country, and I said "Yes, that is the Coca-Cola top."

(Witness excused.)

CHARLES HOWARD CANDLER,

the next witness called on behalf of the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Please state your full name.

A. Charles Howard Candler.

Q. What is your age?

A. Thirty-two.

Q. Are you connected in any way with the Coca-Cola Company?

A. Yes, sir.

Q. In what capacity?

A. I am its Vice-President, and in that capacity, General Manager of factory.

Q. Do you have charge of the manufacture of Coca-Cola syrup?

A. Yes, sir.

Q. How long have you been occupied in that position?

A. That latter position, since — I have been Vice-President since 1906, and I have had charge of the manufacture of Coca-Cola in the Atlanta factory since 1903.

Q. Before that time were you connected with the company in any way?

A. Yes, sir; my first connection was as a laborer in the factory, after which I was put on the road as traveling salesman, and after that, I was made manager of the New York branch office, and from there, I came back to Atlanta, taking up the position of General Traffic Manager, and from that I went into the office as Vice-President and General Manager of the factory.

Q. So that how long altogether in these various capacities were you connected with the Company?

A. Thirteen years.

Q. During all this time, had this product been manufactured and sold on the market and advertised under the same name, Coca-Cola?

A. It had.

Q. You were in charge of manufacturing the syrup at the time these visits of Dr. Kebler and Lynch were made?

A. Yes, sir.

Q. And at the time the product was seized in this case?

A. Yes, sir.

Q. Can you draw up on the black-board a sort of sketch of the two floors on which this syrup was manufactured?

A. Yes, sir.

Q. I wish you would do that. Explain the drawing as you make it.

A. This is necessarily a crude drawing, because I want to save time. It will not be absolutely accurate.

Q. Just draw a diagram of it, that is all I want.

(During the testimony the witness is making various drawings on the black-board.)

A. That represents in a crude way a kettle. This is —

Q. That kettle is on the floor on legs?

A. Yes, sir. It comes up about two-thirds of the way here.

Q. How high is the top of it?

A. Four and a half feet.

Q. And the platform extends around about how much of the circumference?

A. About one-half.

Q. What floor of the building is that on?

A. The street floor.

Q. The floor that you come in on as you come in from the street?

A. Yes, sir.

Q. Now, proceed.

A. This floor is made up of a double floor, so to speak, the top layer is seven-eighths tongued and grooved and the bottom layer is three-inch spline planking, plank which has been grooved and the splines driven into it, making one running across the building and one running with the building, a dust and water proof floor. The building we occupied at that time is what contractors term heavy slow-burn, mill construction. The platform was of sufficient area to accommodate about twenty-five barrels of sugar. It took approximately about that much to manufacture a completed tank of Coca-Cola, between twenty and twenty-five barrels of sugar, depending on the amount of sugar in the barrel.

Q. How much will the kettle hold?

A. Three hundred gallons.

Q. How many kettles to make a tank of syrup?

A. Four meltings of the kettle make one batch of Coca-Cola.

Q. The sugar was dumped into that from the platform?

A. Yes, sir; in quantities sufficient to make one melting, about five barrels of sugar, 350 pounds to each barrel.

Q. Proceed.

A. As the sugar is dumped — the water is run into the

kettle from a storage tank which has previously received filtered water out of the city mains. We use an International Filter, which is generally accepted to be one of reliability. A sufficient quantity of water is brought in that to keep the sugar from burning when it comes in contact with the sides of the kettle. After the sugar is melted, the coloring is put in.

Q. That is caramel or burnt sugar?

A. Yes, sir. Then the kettle is filled with water to bring it up to the quantity of water required for that kettle full. The caffeine is put in the third or fourth melting for obvious reasons.

Q. You say for obvious reasons; why?

A. We want the caffeine to come in contact with hot syrup and be followed by hot syrup; in other words, to fulfill the operation, it takes four meltings to make a tank; we put the caffeine in either the second or the third melting so as to insure it being in a hot medium all the time.

Q. All the caffeine that goes into the tank would be put in the second or third of these meltings, then?

A. Yes, sir.

Q. That, you say, is to facilitate the absorption of the caffeine?

A. To keep the caffeine at an even temperature, to keep the syrup at an even temperature and let it all cool off evenly.

Q. What is done with the sugar, then?

A. After the sugar is melted, the contents of the sugar are controlled by a gate valve, a pipe line coming down in the floor sustained from the ceiling by means of hangers, and we have certain copper-lined, wooden cooling vats, suspended by means of a cradle, which is made up of large eight by eight or eight by ten stringers in the shape of this, (indicating). They are sustained by rods going right up to the ceiling, holding the tank up. The pipe drops down into the tank like that. The finished syrup is left in that tank until it is cold. After it is cold, there is a pipe coming out of the bottom of this tank going off for convenience into a mixing tank which sets on a kind of platform or support, and that in turn sets on the floor. When we get ready to mix this syrup in this mixing tank, the laboratory is situated over in another part of the building, containing in one corner of it a funnel attached to a pipe line which leads directly into the mixing tank, through which various flavoring extracts, glycerine, Merchandise No. 5, and lime juice are conveyed. The phosphoric acid, for obvious reasons, is poured directly through the man hole in the top of the tank.

Q. Why do you say for obvious reasons?

A. Phosphoric acid has a quite active influence on metal pipe through which the flavors are conveyed.

Q. Corrodes them?

A. Yes, sir. This tank is wood in its entirety. In the bottom of the kettle pipe we have a copper mesh, strainer, to catch the larger particles of wood and nails and trash, such as is found in all sugar, regardless of who manufactures it.

In the bottom of this tank here we have a trap strainer, manufactured out of copper, fine copper mesh wire, and the goods are strained through it, and if it has anything in that this first mesh did not catch, it is caught on this strainer.

We get the goods out of the mixing tank by means of a draught arm, like one on a soda fountain, which ends in a similar pipe. This pipe here is a three-inch galvanized pipe and there are valves here. A barrel is set directly under that on a rack. At this opening here, where the pipe goes out, there is another strainer, finer than either of the two previous strainers, to catch anything that might have passed possibly through those two strainers. All the funnels we use for directly filling the barrels, are equipped with cheese cloth covers so that when the syrup hits the cheese cloth, the cheese cloth acts as strainers and they keep any dust or dirt that may have gotten through the copper strainers from going into the barrels. When filled, the barrels are sealed and set aside for use.

Q. As the syrup comes from the first floor down to the basement, it is a mixture of sugar, water, caramel and caffeine?

A. Yes, sir.

Q. Then, when it comes to the mixing tank, the other ingredients are put in?

A. Yes, sir.

Q. When it is drawn off into the barrels, it is complete Coca-Cola syrup?

A. Yes, sir.

The Court: That mixing tank contains four meltings?

The Witness: The cooling tank contains four.

The Court: It all gets into that?

The Witness: Yes, sir; the entire quantity of caffeine, colored syrup goes into the cooling tanks from the mixing tank.

The Court: You have four meltings on the first floor?

The Witness: Yes, sir.

The Court: Those are distributed in the various cooling tanks?

The Witness: No, sir; they go into one melting tank.

The Court: The cooling tank contains four meltings?

The Witness: Yes, sir; it has a capacity of fifteen hundred gallons and we put in twelve hundred gallons.

The Court: There is no mixing in the cooling tanks?

The Witness: No, sir.

The Court: The mixing process is entirely in the mixing tank?

The Witness: Yes, sir.

BY MR. SIZER:

Q. What process do you follow to mix these ingredients in the mixing tank to incorporate them with each other?

A. We have in the mixing tank a blade of cypress wood split paddle. That means to convey the idea that part of the paddle is stationary and the other arms run, the fixed portion of the paddle making resistance, and the stirring insuring a thorough mixture.

Q. Is that something like the paddles in an ice cream freezer?

A. The principle is essentially the same.

Q. And those paddles in operation while the syrup is being drawn into the barrels?

A. Yes, sir. We start up the mixing when all the ingredients are in the mixing tank. That mixing is kept up until such time as we have found by experience will thoroughly mix all the ingredients, and when the barrels are ready to be filled, that mixing is continued, so that a uniform syrup goes into the barrels, the same syrup in the last as in the first.

Q. How many employes have you in the factory engaged in this business?

A. About eight.

Q. What is their color?

A. Mixed, some are white, some are colored.

Q. About how many colored and how many white?

A. As I recall it, we have three white men and possibly five negroes.

A. Who does the drawing-off of the mixed stuff off into the barrels, the white or colored employes.

A. Two white men.

Mr. Miller: I object to that. I wish this examination to be confined to October, 1909.

The Witness: I am confining it to that time.

Mr. Sizer: I intended to do that and the witness so understood.

BY MR. SIZER:

Q. Now, these conditions all existed in October, 1909, did they?

A. Yes, sir.

Q. What was the name of the man you had that dumped the sugar into the kettles first?

A. James Guest, we called Jeems for short.

Q. What was his official title?

A. We called him the "cook" although we do not cook Coca-Cola.

Q. How long has he been employed by the Coca-Cola Company in that capacity?

A Since 1889 — not in that capacity. He has been in that capacity since 1906.

Q. Does he chew tobacco.

A. No, sir.

Mr. Miller: I object to that.

The Court: On what ground?

Mr. Milier: He asked if he chewed tobacco.

The Court: It is understood that all of this questioning relates to October, 1909, if that is the ground of your objection.

The Witness: I am endeavoring to state as to that.

Mr. Sizer: Whenever I ask any questions, if I do not specify, I refer to conditions existing in October, 1909.

BY MR. SIZER:

Q. Did this cook chew tobacco in October, 1909?

A. He did not.

Q. Did these employes have different clothes and shoes to wear in the factory from those they wore on the street?

A. Yes, sir.

Q. What kind of shoes and clothes do they put on when they come in?

A. Overalls and jumpers, and heavy shoes to protect their feet from the cold or heat, hot sugar might spatter around.

Q. Do they wear those shoes on the street, or only use them in the factory?

A. Absolutely only use them in the factory.

Q. At the time this seizure occurred in October, 1909, was there a cover over the melting kettle?

A. Yes, sir.

Q. What kind of a cover was it?

A. A galvanized piece of sheet iron properly attached and on a wooden frame for easy handling. The cover was divided in the middle like that, had a rigid support in the middle, the front part of the cover that looked out toward the open part of the factory was stationary; in other words, it didn't open, it would stay closed all the time. The rear part of the cover opened over against the shaft of the

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stirring arm, so as to allow the sugar and coloring and the caffeine to be put into the kettle. In other words, half the kettle was covered all the time and the other half was only opened when the ingredients were being put into the kettle. That was on a hinge, that top.

Q. Suppose the sugar spattered out from the barrel on the platform while the cook was dumping it in the kettle, what implement did he have to get that in the kettle?

A. The sugar would not spatter out from the barrel onto the platform, it would splatter against the cover, but if in emptying the barrel of sugar some of it happened to get out on the platform, we had a thin steel scoop, ordinarily used for scooping coal.

Q. Do you mean that that was used for scooping coal?

A. No, sir, it was manufactured for that purpose.

Q. That kind of a scoop?

A. Yes, sir, it was used for the purpose of gathering up that sugar from the platform and putting it into the kettle.

Q. Was there any dirt on that platform except the sugar or syrup that got on to it?

A. Not a bit.

Q. If any sugar or syrup got on to the floor, did you scrape that up and put it back in the kettle?

A. No, sir.

Q. What would you do?

A. Wash it up with a hose and scrubbing brush.

Q. You had water connections and used hose to clean the floor?

A. Yes, sir.

Q. Where did the washings from the hose go to?

A. On that first floor we would sweep them out of the door on to the sidewalk.

Q. In the basement story, where would they go?

A. Into a trap provided and connected to the city sewer.

Q. Did that sewer connection have a regular trap in it as any other sewer connection?

A. Yes, sir.

Q. Were there any water closets on those two floors?

A. There was none on that basement floor.

Q. How was that factory ventilated?

A. In accordance with the building ordinances and of good building construction.

Q. This factory is located in Atlanta?

A. Yes, sir.

Q. And subject to certain regulations that prevailed there?

A. Yes, sir.

Q. How often were the tanks on the floors in those two stories cleaned out?

A. Periodically, and as often as needed or as was necessary.

Q. Whenever they needed washing they had a good washing?

A. Invariably.

Q. Do you know what Merchandise No. 5 is made from?

A. Yes, sir.

Q. How do you know it?

A. I went through the laboratory of Doctor Schaeffer.

Q. At Maywood?

A. Yes, sir.

Q. What is it made of?

A. Coca leaves and kola nuts, in the main.

Q. Before the coca leaves are used, do you know whether the cocaine is extracted from it?

A. Not of my own knowledge.

Q. But you do know that coca leaves and kola nuts are used in the manufacture of Merchandise No. 5?

A. Yes, sir.

Q. And that Merchandise No. 5 as received from Doctor Schaeffer, is put in as one of the ingredients of Coca-Cola?

A. Yes, sir.

Mr. Miller: I object to that form of examination.

The Court: That objection is sustained.

BY MR. SIZER:

Q. State whether or not Merchandise No. 5 as it comes from Doctor Schaeffer is put in the Coca-Cola syrup.

A. It is.

Q. Is there any change made in the condition of its before it is put in?

A. Absolutely none.

Q. Where do you get that?

A. From the Monosanto Company and from the Schaeffer Alkaloid Chemical Works.

Q. Is that caffeine put into the syrup on the first floor without any change as it comes from the factory?

A. Absolutely.

Mr. Miller: We object to that.

The Court: That is somewhat leading.

BY MR. SIZER:

Q. You speak of the Monosanto Chemical Works. Whose manufacture?

A. John F. Qeeney.

Q. Since you have been manufacturing this product, has it ever been manufactured and sold under any other name than Coca-Cola?

A. No, sir.

Q. Has the company ever advertised or sold it under the name of "Dope" or "Coke"?

A. No, sir.

Q. You testified about a number of strainers being used in the process of conveying the syrup from the kettle on the first floor down to the mixing tank in the basement and the last strainer, I believe you say, is cheese cloth.

A. Yes, sir.

Q. I want to ask you if you have seen the debris that was collected out of this keg offered in evidence by the Government the other day.

A. Only casually.

Q. From the examination you made, what does that consist of?

A. Largely sawdust.

Q. Where, if at all, could that sawdust have gotten into the mixture?

A. It was in the keg.

Q. How do you treat those kegs before you put the mixture in them?

A. Steam from a jet, with a boiler pressure of eighty pounds.

Q. You say it might have come or you think it came possibly from the sawdust in the keg; how could the sawdust get in the keg?

A. In manufacturing kegs coopers use a drum saw which in a large measure chews the wood more than it cuts it, leaving particles of sawdust and small quantities of wood adherent to the side of the wood, and when these kegs are assembled and set up, there is a lot of this sawdust that just gets in the cracks of the keg and they are held there by means of pressure exerted by the hoops, and it would be impossible to get them out.

Q. Now, if the head of the keg is knocked in or violently struck, might not that sawdust be knocked out?

A. Yes, sir. If you knock the head of a keg you loosen every joint in it.

Q. Can you form or express any opinion from what you know of the manufacture of this syrup as to how that leg of a fly and a piece of a bee's wing got into there?

A. I cannot.

Q. Could it have gotten in through the mixing tank?

A. No, sir; the strainers would have caught it.

Q. If it got in there it must have come in from the keg?

A. Yes, sir.

Mr. Miller: I object to that. That is leading. The uestion is very suggestive and Mr. Sizer knows it.

The Court: The objection is sustained and the answer xcluded.

BY MR. SIZER:

Q. Is there any other way in which those articles could ave gotten into the syrup except through the keg?

A. None that I know of.

Q. You say these kegs are thoroughly washed before lled?

A. Yes, sir.

Q. Is that the only thing you can do?

A. The only thing we know of.

Q. I want to ask you further now: Do you know hether or not this syrup is strained again as it is taken om the keg before it is put in bottles or used?

A. Invariably. Every soda water man recognizes the ct that he has to strain the substance before it is put in he fountain or put in bottles. They have instructions om us to do it.

Q. That is all you know?

A. Yes, sir; I don't know whether they do.

Q. You heard Mr. Lynch and Doctor Kebler testify bout a lot of second-hand barrels in the yard. I want you o state what those barrels were.

A. Before we take into stock any second hand barrels, he first thing that is necessary is to test them to see hether they are satisfactory for our purpose, and if they o not stand up to the test we discard them and they are rned back to the parties from whom we bought them, but s was the case at this time nearly all of our second hand arrels were obtained from out of the State on account of here being no knowledge of any liquor being sold in Atanta, and we could not turn them back on to the people om whom we bought them, so we threw them in the yard o be disposed of to the Standard Oil people who put heavy rease in them, or to other people, and those that were acepted were set aside and put in stock, and when we got eady to draw the contents from the mixing tank a sufficient number of packages, depending on the kind of packges that we wished to fill from the tank, was assembled ear the steam jet to which I have referred, and they were ll steamed and then conveyed into another room and then onveyed into the drawing room and washed out and filled nmediately.

Q. You say all the second hand barrels that were used ere treated with this steam jet?

A. Yes, sir.

Mr. Miller: We object to that; let him say.

Mr. Sizer: He had stated that and I wanted to get it out again.

BY MR. SIZER:

Q. How long are your barrels held over the steam jet and what is the force and degree of heat of the steam jet?

A. I do not know the degree of the heat, but they are left over the steam jet for approximately three minutes. We have sometimes had a barrel to burst and fly all to pieces on account of the fact that the bung hole was smaller than we thought and did not allow the steam to escape fast enough.

Q. Have you sufficient knowledge of bacteriology to be able to state whether the steam heat to which those barrels were subjected, was sufficient to kill any germs?

Mr. Miller: We object to that. He should give his qualifications first.

The Court: The objection is sustained.

BY MR. SIZER:

Q. Can you qualify as a bacteriologist?

A. No, sir, I cannot.

Q. Do you furnish to your customers any directions with respect to the proportion in which the Coca-Cola syrup should be mixed with water?

A. Yes, sir.

Mr. Miller: That is all right, I have no doubt, but I object to the introduction of those labels that he has because I think they are utterly irrelevant.

The Court: The objection is overruled.

BY MR. SIZER:

Q. Look at these papers I hand you and state if they are the regular form of instructions you send out.

A. This first paper is a label and it has on it the directions: "Draw one ounce of Coca-Cola in seven-ounce glass, then fill glass with large stream of soda water stirring with a spoon that Coca-Cola may be thoroughly mixed."

Q. That is furnished to the fountains?

A. Yes, sir; the other lot of papers is a price list for Coca-Cola in various sized packages on one side, and on the other side the glass and the price list, this glass is the glass we sell to the trade and has a graduated mark on it. Our idea is that often dispensers use too much syrup and we put the directions on the opposite side, being the directions for dispensing: "To Dispense — Draw one ounce of Coca-Cola syrup in seven-ounce glass, then fill glass with

large stream of soda water, stirring with a spoon that syrup may be thoroughly mixed."

Mr. Sizer: We want to offer these two papers in evidence.

(The papers were offered in evidence and exhibited to the jury and marked with the Exhibit Nos. — and —.)

The Court: Offer just one each.

Mr. Sizer: I have a large number; it is simply for convenience.

BY MR. SIZER:

Q. Does the Coca-Cola Company sell this glass to soda fountains?

A. Yes, sir.

Q. Is this one of them? (Indicating.)

A. Yes, sir.

(The glass referred to was offered in evidence and exhibited to the jury.)

BY MR. SIZER:

Q. How much does that hold?

A. Seven ounces. This is a seven-ounce glass.

Q. What does that mark near the bottom indicate?

A. One-seventh of the glass.

Q. Up to that mark would indicate the amount of syrup ——

A. That should be given in dispensing Coca-Cola.

Q. Why do you give those instructions?

A. In order that a more palatable — an absolutely palatable drink shall be served. It has been our experience that these proportions make the best drink.

Q. Suppose you get more syrup in there, what would be the effect?

A. It would likely be too sweet and thickened.

Q. Would it or not be as pleasant a drink as the one ounce of syrup to the six ounces of water?

A. As I have already stated, our experience is that it would not be.

Q. In the bottler's syrup, do you know in what proportion the syrup and water is used in putting up the bottles?

A. One ounce of syrup and seven ounces of water in an eight-ounce bottle.

Q. So that when the goods are bottled there is one ounce of syrup and seven ounces of water?

A. Yes, sir.

Q. And in the drink at the soda fountain, seven ounces, one ounce of syrup and six ounces of water?

A. Yes, sir.

Q. Have you had any experience in the drug business?

A. I worked in the Jacobs Pharmacy a while, helping the chemist to compound pharmaceuticals.

Q. As the manufacturer of Coca-Cola, do you get circulars from the various manufacturers of drugs?

A. Yes, sir; from those that principally deal in drugs.

Q. I hand you a number of documents and I ask you to state first what they are, and in the second place state how coca leaves and kola nuts are described and listed and priced in those circulars.

Mr. Miller: I have no objection to his stating what they are or as to how they are listed, but I object to the rest of the question.

The Court: I overrule the objection. It is a question of fact as to how these words are used. That is the distinction.

A. Those are colored magazines such as go to druggists and manufacturers of pharmaceutical preparations. In the back, practically of all pharmaceutical journals, is a monthly price list which is subject to change. I have gone through these journals and turned down the pages and marked the references where they refer to coca-leaves and kola nuts. And they invariably state as to coca leaves and kola nuts.

Mr. Miller: We object.

BY MR. SIZER:

Q. Give the list to the jury.

A. The Midland Druggist, March, 1911, contains prices of coca leaves but does not contain kola nuts.

Q. Does it contain anything that is derived from cola?

A. It contains two patent cola derivatives.

Q. Does it contain anything under the single name of cola?

A. It does not. The next is dated February, 1911, and does not refer to coca — oh, yes, it does; on page 307 it refers to coca leaves and price and kola nuts and the price. The N. A. R. D. Notes, meaning the Notes of the National Association of Retail Druggists, purporting to be a journal of the retail druggists, date March 9, 1911, and on page 1379 coca leaves and on page 1380 kola nuts. Bulletin of Pharmacy, December, 1910, contains on page 52 kola nuts and has no reference to cola leaves or to coca leaves or coca that I can find. The Pacific Drug Review, February, 1911, on page 2 of the price lists, refers to coca leaves and on page 8 of the price list refers to kola nuts, and also to kola nut powder. The American Druggist, March 13, 1911, a

recent publication, refers on page 84 of the price list to coca leaves, Truxillo and Huanaco, two kinds of coca leaves. On page 88 it refers to kola nuts and again to the two kinds of cola leaves under the head of "Leaves."

The Practical Druggist, March, 1911, refers on page 71 to both kinds of coca leaves under the head of "Leaves," and to kola nuts, dried.

The Western Druggist, February, 1911, under Leaves, refers to coca leaves on page 72, and on page 73 kola nuts. That is the bunch that you have given me.

Mr. Miller: We offer the additional objection that all of these publications during this year or the latter part of last year, all since this seizure and for all we know may have been manufactured expressly for this case.

The Court: I think that is too hypothetical. I think 1911 is sufficiently close. If there has been any change you can show it.

Mr. Miller: Note an exception.

BY MR. SIZER:

Q. To remove any doubt on that question I ask you whether you have manufactured or have had manufactured any of those publications for the purposes of this suit.

A. I have not.

Q. You say you served in a drug store for a short time?

A. Yes, sir.

Q. I will ask you whether you know that coffee and tea extracts are regularly sold as soda fountain products.

Mr. Miller: We object to that. They might sell dynamite and other things that would kill people but two wrongs do not justify another wrong and I object to it.

The Court: What is the ground for the introduction of that?

Mr. Sizer: The ground is that tea and coffee, like other caffeine containing drinks, are commonly sold at fountains.

The Court: Do you propose to show that fact?

Mr. Sizer: Yes.

The Court: And that they contain approximately the same amount of caffeine?

Mr. Sizer: Or more.

The Court: If you can connect this up you can proceed.

BY MR. SIZER:

Q. Do you recall any visits made to your factory prior to the institution of this suit by Doctor Kebler and Doctor Lynch?

A. Yes, sir.

Q. How many visits did Doctor Kebler make to your factory?

A. Three.

Q. What were the dates?

A. The first visit was August 13, 1907.

Q. Did he call on you on that occasion?

A. Yes, sir.

Q. Did he tell you what he wanted?

A. Yes, sir.

Q. What did he say he wanted?

A. He said he wanted to make an inspection of the factory to find out how we manufacture Coca-Cola.

Q. Did you take him around the factory?

A. Yes, sir.

Q. Show him everything he wanted to see?

A. Everything he asked for.

Q. Did he go through the four floors of the building?

A. No, sir.

Q. How many of them?

A. Only on the first or street floor, and the basement.

Q. Where the goods were manufactured?

A. Yes, sir.

Q. What was the date of the next visit?

A. I don't remember the date but he testified some time in the middle of the following summer.

Q. Who was with him on that occasion?

A. A lady that he introduced to me as his wife.

Q. Did he come to see you before going through the building on that occasion?

A. My recollection is that he left his wife in the vestibule or entrance to the building and came to my desk stating that the Coca-Cola factory was one of the points of interest in Atlanta and his wife was there with him and he would like to show her over it, to which I was agreeable, and took pleasure in showing her around.

Q. Did he say on that occasion he wanted to make any official inspection?

A. He did not.

Q. What was the date of the third visit and with whom did he come?

A. October 20, 1909.

Q. Who was with him at that time?

A. Lynch.

Q. Did they come to your office and call on you on that occasion?

A. No, sir, they did not.

Q. How did you first learn of the presence of Doctor Kebler and Doctor Lynch in the building at that time, and

where were they or either of them?

A. As I came into the factory from my noonday meal, my manager, of the manufacturing department, came to me and seemed outraged ——

Mr. Miller: Now, we don't care for that.

BY MR. SIZER:

Q. You need not tell that.

A. I have to tell that I was apprised by someone.

Q. You were apprised by your manager that someone was there?

A. That the Government inspectors were in the basement.

Q. Did you go to the basement?

A. Before I took off my hat I went immediately to the basement and asked what they were doing there and what the purpose of their visit was, and also that I thought it was proper that they should have seen me or someone in authority before proceeding to make an examination of the factory. They said they didn't care whether they saw anybody or not.

Q. When you went down and saw those two gentlemen, where was Doctor Kebler?

A. Doctor Kebler was standing on one of the stringers supporting the cooling tank, looking into the cooling tank. He had easy access to that because we kept a stepladder in the basement all the time for the purposes of our men getting into the tanks for cleaning purposes.

Q. Where was Doctor Lynch?

A. Close in the neighborhood taking notes, but he was not on a stranger.

Q. Did you hear Doctor Lynch testify about buying a sample of Merchandise No. 5 from you?

A. Yes, sir.

Q. Who was present when he bought that sample?

A. When the actual sale was made I was the only one.

Q. You sold him the sample?

A. Yes, sir; and took his Government voucher for it.

Q. Did your father come in?

A. No, sir. I went to my father who was the financial man ——

Mr. Miller: We don't care about the motives that actuated him in going to his father. If he went to his father, all right.

The Witness: I have to explain why I went. I will have to tell why I went.

BY MR. SIZER:

Q. You did go to your father?

A. I didn't know anything about Government vouchers and I wanted to ask about it.

The Court: It is utterly immaterial and does not hurt one way or the other, but the objection is sustained.

BY MR. SIZER:

Q. You need not state why you went. Did Mr. Lynch go with you to your father?

A. No, sir. I brought my father to him.

Q. Now, what occurred between Mr. Lynch and your father with respect to the purchase of that sample of Merchandise No. 5?

A. My father stated to him that in the absence of any definite knowledge on his part as to the requirements of the law, he doubted whether the Government had any authority to buy one of our essential raw materials, and that he had none of it for sale and that he had only Coca-Cola for sale; but if the Government was entitled to it, he would rather give it to him than sell it to him.

Q. Did your father display any heat or excitement or indignation?

A. None other than what I have stated.

Q. Did he swear?

A. No, sir.

Q. Does your father use profane language?

A. No, sir; and never did in his life.

Q. Did he at that time use profane language?

A. No, sir.

Q. Did you hear the language that Mr. Lynch attributed to your father?

A. Yes, sir; I thought it was very far-fetched.

Q. Did your father use that language?

A. No, sir. Doctor Kebler had never been known as a carpenter by anybody that I know of.

Q. I will ask you if you have sent any samples of Coca-Cola syrup or any of the ingredients that enter into the manufacture of Coca Cola syrup to any one within the last year or so, and if so, give the dates and the names of the persons to whom you sent the samples, — and I want you to identify some of the samples.

A. In the latter part of January I sent to Doctor J. W. Mallet two bottles, one of which contained Coca-Cola syrup and the other the ingredients of Coca-Cola syrup except Merchandise No. 5, marking the bottles Nos. 1 and 2.

Q. That was Dr. J. W. Mallet, at what place?

A. Charlottesville, Virginia.

Mr. Miller: What was the date of that?

The Witness: The latter part of January, 1910. The

bottle marked No. 1 was the one which contained the ingredients without Merchandise No. 5. Bottle No. 2 contained Coca-Cola syrup. I sent that same line of samples at the same time to Dr. Charles Caspari of St. Louis.

BY MR. SIZER:

Q. Did you number those the same way?

A. Yes, sir. On April 21, 1910, I sent the same samples numbered in the same way to Doctor Wesener.

Q. At Chicago?

A. Yes, sir. On December 8, 1910, I sent to Doctor Emerson of Boston by prepaid express two bottles, one of which contained all the ingredients necessary to make one gallon of Coca-Cola syrup except the sugar. The other bottle contained all the ingredients necessary to make one gallon of Coca-Cola except the sugar and coloring matter, and I so marked each bottle.

Q. Were the samples of Coca-Cola syrup you sent to those different people identical in their composition with the other syrup that was seized in this case?

A. Exactly.

Q. Were the ingredients that you sent the same as were used in the manufacture of the article seized?

A. They were.

Q. Did this colored cook that poured the sugar into the kettle ever work around it with nothing on but his undershirt and trousers?

A. No, sir; he would have been run out of the factory.

Q. What did he wear on the upper part of his body?

A. It is what is called a jumper, made out of the same material that overalls are made of.

Q. Did he ever wear shoes with holes in them and with his toes sticking out, and did he ever kick the sugar into the kettle with his toes?

A. No, sir; that would have been dangerous, and he never did.

Q. How would that be dangerous?

A. In putting this large heavy weight in the kettle it might splash out of the kettle and give him a very severe burn. He had to wear heavy shoes for protection, the ordinary brogan shoes with heavy soles on them.

Mr. Sizer: That is all.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Just take this glass that you furnish to the trade and point out to the jury the hypen in the word "Coca-Cola."

A. I am unable to do that.
Q. You have the glass there.
A. Yes, sir, but it is not on there.
Q. You cannot find any hyphen in it?
A. No, sir.
Q. That is the glass you sent out with the Coca-Cola?
A. That is the one.
Q. Now, take one of these labels that you filed. I noticed on the bottom the signature: "The Coca-Cola Company by Asa G. Candler, President." Is that a facsimile of your father's signature.
A. Yes, sir.
Q. Now, find the hyphen in that.
A. I see a hyphen between the words, "Coca" and "Cola."
Q. Indicate that to me.
A. Here it is. (Indicating.)
Q. That is what you refer to?
A. Yes, sir; I put my pencil on it because it is too small to put by finger on.
Q. But you found none on the glass?
A. No, sir.
Q. Did you hear the testimony of Asa G. Candler in the controversy between Rucker and The Cola-Cola Company?
A. No, sir.
Q. You didn't hear your father testify?
A. No, sir; I did not go into the court room during the trial at all.
Q. At what stage of this mixing process of this preparation of Coca-Cola syrup is the caffeine put in? I did not quite catch that in your examination in chief.
A. It may or may not be considered to be put in as the very first ingredinet. It is the first ingredient in the melting in which it is put.
Q. Tell us what you said on that point.
A. That was the idea I intended to convey. For facility of manufacture we manufacture one melting and let it go into the cooling tank first. Then in either the second or third melting the caffeine is incorporated.
Q. You have first, as I understand you, this kettle which sets in the corner of the upper room?
A. Yes, sir.
Q. What is the first ingredient that goes into the kettle?
A. When we first commenced to manufacture Coca-Cola —
Q. (Interrupting.) I am not talking about that.
A. For that tank or any tank the first thing that goes in is —

Q. (Interrupting.) I am referring to the time of the seizure. Was that the process of manufacture that took place when the seizure took place?

A. Yes, sir. The first thing that went in was the water.

Q. After the water was put in what was done?

A. It was left in there until the melting was ready to be made.

Q. Are there four different receptacles?

A. No, sir; one kettle but there are four different meltings necessary to manufacture one tank of Coca-Cola.

Q. I understand that.

A. I did not know it.

A. The water goes in first?

A. Yes, sir.

Q. Then wh[illegible]?

A. The sugar.

Q. That is conveyed by the negro who stands on the platform?

A. Yes, sir.

Q. Then what comes in next?

A. Caramel coloring.

Q. That is conducted or brought from where?

A. From the barrel contiguous to the platform.

Q. After that is put in, then what follows?

A. The kettle is dumped into the melting tank; that is, it is first melted. I have described the first melting.

Q. That is then brought to a boiling point?

A. No, sir.

Q. What do you do?

A. We raise the temperature sufficient to melt the sugar.

Q. Then run it down into the cooling tank?

A. Yes, sir.

Q. Then what follows?

A. Then we proceed to manufacture the second melting.

Q. What is that?

A. It consists of running a certain quantity of water into the kettle and bringing that to a boiling point, and bringing in the requisite amount of caffeine and dissolving it in the water and on that is put the sugar for that kettle, and following that the coloring matter, and following that, the kettle is filled to its capacity with water, and then that is brought to a sufficinet temperature to melt the sugar, and then that is dumped into the first or rather into the tank with the first kettle.

Q. You do not put any caffeine in the first kettle?

A. No, sir.

Q. That is put in the second?

A. In the second or third, according to convenience for handling of the specific amount. It just happens on whether we are ready to put the caffeine in.

Q. Then the third kettle?

A. That is identical with the first, and the fourth is identical with the first.

Q. The only difference in the manufacture of the four kettles is that in some one of the intermediate kettles, between the first and fourth, you put in the caffeine?

A. That is the idea.

Q. Where is that caffeine brought from when it is put into this kettle?

A. Brought from the so-called laboratory.

Q. What kind of a receptacle was it brought in in 1909?

A. Depending on the shape and source of the caffeine. If we get it from the St. Louis house we use what we call the advertising matter box which is a box that we use for packing advertising matter, a tongued-and-grooved and dove-tailed box, which makes it tight so that the caffeine won't drop out, and the caffeine is weighed from the drums. It comes from St. Louis in large 200 pound drums. The proper amount is weighed out. If we use the Maywood article that comes in two sizes of cans, 20 and 10 pounds. If we make a tank of fountain goods, we verify the weight of the cans and we take a 20-pound can and then we take a 10-pound can and remove from it two pounds and take the remainder of the ten pounds and the whole of the twenty pounds and put it in the syrup.

Q. You put in the contents of the two cans?

A. Yes, sir. In the event that we have no 20-pound cans we use 10-pound cans, two of them instead of one 20-pound.

And the negro would convey it from the laboratory down to the kettle and dump it in?

A. Yes, sir; into the boiling water.

Q. Now, if I understand you, you never analyzed Merchandise No. 5?

A. Never.

Q. You mean to say you don't know what is in Merchandise No. 5?

A. Except as I say that the Schaeffer Alkaloid Works manufactured it.

Q. What was the date of your visit to the Schaeffer Alkaloid Works?

A. July, 1908.

Q. There you merely saw the coca and some other constituents, or supposed constituents, of it undergoing a process of treatment?

A. I saw coca leaves and kola nuts assembled. I was

there the entire day and I saw them assembled in the proper quantities according to Doctor Schaeffer's rule.

Q. That is merely according to what somebody else said?

A. I saw it carried through the laboratory by Doctor Schaeffer.

Q. When you say "proper quantities according to Doctor Schaeffer," you mean what he said to you?

A. Yes, sir.

Mr. Miller: We move to exclude that testimony.

The Court: The motion is sustained and that part of the answer is excluded.

BY MR. MILLER:

Q. Then when you have stated that you went to Dr. Schaeffer's factory and made an inspection, you merely were conducted through there by him or someone else and you saw what you term coca leaves under treatment and kola nuts assembled and being percolated with some kind of liquid substance?

A. Yes, sir; coca leaves and kola nuts.

Q. That is all you know of Merchandise No. 5 and its ingredients except what may have been told you?

A. When it comes into the factory I test it to see that it is as it is oridinarily.

Q. Now, in detail tell what those tests are.

A. The tests are not done by me directly except in so far as I am in charge of it directly.

Q. I want to know the part that you were personally in charge of and can tell about.

A. I take the specific gravity of it.

Q. What is that?

A. A little over six; I think it is a little over six.

Q. What do you mean by "six"?

A. It weighs 6.8 pounds to the gallon.

Q. You can weigh it without taking the specific gravity, can't you? I ask you for the specific gravity, if you are prepared to give that.

A. The only test that I employed of my own personal knowledge — we have a chemist who finally passes on it. All I know of my own personal knowledge is that there is no fermentation process going on in it which would be indicated if they had not sufficient quantity of alcohol in.

Q. All you profess to know is whether or not it has the same general appearance?

A. Yes, sir.

Q. To the naked eye, as Merchandise No. 5 that you ordinarily use?

A. Yes, sir.

Q. But whether or not you could detect whether there is an increase or diminution of alcohol ——

A. That is manifest by the absence of fermentation process.

Q. Those are the two processes, one by looking at it?

A. And by the taste.

Q. And by the taste you determine whether there is an increase or diminution of alcohol?

A. No, sir; I don't as to whether there is an increase or diminution of alcohol.

Q. I thought you said that.

A. No, sir. The diminution of alcohol would cause fermentation process and if the fermentation is absent I know it has a sufficient amount of alcohol to preserve it.

Q. That is the object of your tasting it, to ascertain whether ——

A. It has fermented.

Q. And if there is sufficient alcohol in it it would not be fermented?

A. No, sir.

Q. Have you ever tasted any that was fermented?

A. Yes, sir.

Q. Sometimes you get it when it is fermented?

A. Not now, and did not when this case was on.

Q. You did get it from Doctor Schaeffer?

A. That was long years ago.

Q. You got it when there was not sufficient alcohol used to preserve it and fermentation had taken place?

A. The packages were not air-tight, as he explained to me. I don't know anything about it.

Q. Did you in that case attribute the fermentation to the fact that air came in contact with it or that there was not sufficient alcohol?

A. I did not know to what to attribute it.

Q. You are not prepared to say if fermentation takes place what it is attributable to?

A. No, sir; I only know what he told me.

Q. So that the only test you could make about it is to see whether it has fermented by tasting it?

A. Yes, sir.

Q. But what causes the fermentation you don't know?

A. Except what he told me.

Q. And also the general appearance to the naked eye?

A. That is right; yes, sir.

Q. Those are the only two tests you made?

A. Yes, sir.

Q. Did you ever make any experimentations to ascertain whether or not Merchandise No. 5 could be produced

from certain chemicals and coloring substances?

A. I never did.

Q. You are not prepared to say whether that could be done or not?

A. No, sir.

Mr. Miller: In so far as this witness has made any statement as to the contents of No. 5 I object because he has on cross-examination stated that he does not know what is in it.

Mr. Sizer: He did not undertake to say in the examination in chief. He said he did not know anything about it.

The Court: He has stated that he saw coca leaves and kola nuts being subjected to certain processes. That is the only statement he has made in reference to that.

Mr. Miller: In Doctor Schaeffer's factory.

The Court: Yes, sir; and that is the only statement I recall.

Mr. Miller: I think he said they were used in making Merchandise No. 5. He did say, I think that he saw them—

The Court: Yes, he did say that he saw them used in making Merchandise No. 5 in that factory.

Mr. Miller: My point is that his statement to that effect should be excluded because all he says is that he saw them undergoing certain processes, and I asked him if that was all he knew and he said except what Dr. Schaeffer told him.

The Court: I think the objection is well taken. He says he saw them undergoing the processes but as to the making of Merchandise No. 5 that was entirely hearsay from Doctor Schaeffer and so I exclude that. Now, understand, gentlemen of the jury, it is admitted that the witness said he saw coca leaves and kola nuts being subjected to certain processes but the purposes for which they were being subjected is what I exclude.

Q. I will get you to state if it is not true that Dr. Schaeffer in his alkaloid work makes a great deal of cocaine, and a great many other alkaloids.

A. I don't know.

Mr. Sizer: I object to that.

The Court: The witness says he does not know.

BY MR. MILLER:

Q. As a pharmacist, are you prepared to say if he does make other alkaloids, and if he produces cocaine, that it is necessary to use coca in order to do it?

The Court: The witness says he does not know.

BY MR. MILLER:

Q. Now then, what do you know about the coca or coca

leaf?

A. I know very little about it.

Q. Did you ever see any of it growing?

A. No, sir.

Q. Did you ever see any of it green?

A. No, sir.

Q. Did you ever see any of it while it was in process of drying?

A. No, sir.

Q. Then, do you know anything about coca or coca leaf?

A. I expect so.

Q. Well, tell me.

A. I have seen a great deal of coca leaf.

Q. And where did you see that?

A. In the manufacture of Merchandise No. 5, I received a great deal of coca leaf in the dry state.

Q. In the dry state?

A. Yes, sir.

Q. And you made your purchases from where?

A. From various sources, the Parke-Davis Company, largely, and other importers.

Q. Do you know what that substance was, will you give us the name of it that corroded the pipe it was introduced into?

A. Phosphoric acid.

Q. Which of these tanks was it that was not covered over in your factory?

A. The cooling tanks were not covered.

Q. How many of these cooling tanks was there?

A. Ten.

Q. And each of these tanks held approximately what proportion of the mixture?

A. Their capacity was fifteen hundred gallons, but we only put twelve hundred gallons in them.

Q. And by cheese cloth, you mean one of these sort of mosquito affairs, don't you, that has just places in it through which water can readily pass and catch some of the sediment?

A. No, sir.

Q. Well, what do you mean by cheese cloth?

A. I think it is sufficiently well known to know what it is — I go into a dry goods store and ask for cheese cloth, it is more or less loosely woven close mesh of soft goods.

A. Loosely woven close mesh?

A. Yes, sir.

Q. And if you thought you got the sediment out of this Coca-Cola, why is it that your directions require that a man should, who purchases it ought to strain it after he gets it?

A. To be able to catch any of these things that might have been in the keg, not known to us.

Q. Then you thought your methods were not sufficinet to keep out these substances which may be found in there which were foreign to the mixture, and therefore you asked the men to whom you sent it to strain it himself?

A. No, that is not the reason we did it. Soda fountain men have always done it before we went into business.

Q. Then you don't direct them to do it because they have always been doing it?

A. No, sir, we don't direct any soda fountain men to do it at all.

Q. You do issue directions, you stated, to have it re-strained before it went to the consumer?

A. No, sir, that was to the bottler.

Q. Why did you direct them then to re-strain it?

A. Why, simply to exercise all the precaution we possibly could, to keep from clogging up their machinery and getting anything ——

Q. (Interrupting.) Then you were interested in protecting their machinery?

A. Yes, sir.

Q. And that is the reason of it?

A. Yes, sir; they get their machines clogged up and they will not get a full ounce into a bottle.

Q. Well, what has the machinery getting clogged up to do ——

A. (Interrupting.) Possibly there would be a piece of sawdust in it, that is hard to get out of the keg.

Q. And you thought that machinery might get clogged and therefore, in the interests of their machinery, you directed it is strained?

A. No, sir; not necessarily in the interest of their machinery, but in the interest of getting a full quantity into a bottle, and to save any foreign substance or sawdust into the bottles.

Q. And then, you did it in the interests of your cumpany?

A. No — they might get several things — they would not get a full ounce.

Q. Well, that would not be to your financial loss, that would be up to your financial loss, if they did not give it that would be up to your financial loss, if they did not give it that way?

A. Well, we are not purely in business from a financial standpoint.

Q. You are not purely in business from a financial standpoint?

A. No, sir.

Q. Well, you are not in business from a charitable standpoint?

A. No, sir, but we want people to get what they ask for, and when they ask for it, if they don't get what they ask for ——

Q. (Interrupting.) And then you want them to get what they ask for?

A. Yes, sir; you can create a demand for goods if they are properly supplied.

Q. Now, about James Gaston, was he a negro or a white man?

A. A negro.

Q. What was he engaged in or doing, on October 18th, 1909?

A. He was a so-called cook.

Q. How was he dressed that day?

A. I don't have any definite recollection as to how he was dressed that day, but he was likely dressed as he ordinarily dressed.

Q. Well, how was he dressed the following day?

A. I don't know.

Q. How about the next day?

A. Those answers will have to apply to all those questions—

Q. And what you have said about the dress was as you frequently saw him going in the factory?

A. Not as I frequently saw, but as I ordinarily saw him?

A. As you ordinarily saw him?

A. Yes, sir.

Q. And as you ordinarily saw him, you did not see him chew tobacco?

A. No, I could swear positively that I never saw him chew.

Q. You never saw him chew?

A. No, sir; I did not.

Q. You never saw me chew?

A. I have not seen you as much as I did him, I saw him every day.

Q. This was a coal, the thing you used to scoop the sugar up with, that was sort of a spade or shoval usually used to shovel up coal?

A. It might have been.

Q. That was the kind of article it was?

A. Yes, sir; it was manufactured by the people who manufacture scoops — there would be a whole lot of the sugar that would be hard to get out of the barrel, you would

have to shovel it out of the barrel.

Q. You used it with both hands?

A. Yes, sir.

Q. Often handled it that way?

A. Yes, sir.

Q. It is large metal scoop?

A. Yes, sir.

Q. It is true that this water closet opened into the room where you manufacture this compound?

A. You could not get into it from the factory if it had not.

Q. I want to know if it didn't open into it?

A. Yes, sir; the door opened into it.

Q. And you have not shown that in your drawing on the black board?

A. No, sir; I was asked to show a drawing of the manufacturing of Coca-Cola, and the closet didn't enter into that at all.

Q. You say you are unable to account for these remnants of animal life found in this mixture?

A. Yes, sir; absolutely. I have my ideas, but I am unable to say.

Q. Well, you know insect life frequents closets, don't you?

A. No, sir.

Q. You don't know it?

A. No, sir; not bees.

Q. You don't know that as a matter of common knowledge?

A. No, sir; I never saw a bee in a closet in my life.

Q. As to the sugar, do they not haunt sugar?

A. Yes, sir.

Q. Do you know personally how often drinks were served or ordinarily served in this section of the country in 1909, Coca-Cola syrup?

A. You mean Coca-Cola syrup?

Q. Well, Coca-Cola syrup, how it was ordinarily served at the fountains, in what proportion, in Chattanooga, 1909?

A. I don't know anything about that, this was my first visit here, just a few days ago.

Q. Well, you do know it to be a fact that the soda fountain trade ordinarily does not use the glass that you have exhibited here, which you claim that the Coca-Cola Company furnish, do you?

A. If they don't use it, I am unable to know what they do with it; we send a great many out.

Q. Well, don't you know as a matter of fact, Mr. Candler, that great many purchases are made of Coca-Cola by a

great many stores in this section that do not buy or use the fountain glass, or that is, the glass your company puts out?

A. I don't know as to that.

Q. Do you know whether it is or is not a fact?

A. No, sir, I don't, because we sell, as I say, a great many of them, and they are bound to be used somewhere.

Q. Of course, otherwise you would not manufacture them.

A. No, sir.

Q. But you don't know to what extent they are used?

A. No, sir; except they are used and we sell them. Very likely soda fountains use them for other purposes.

Q. It is very likely that they use other glasses that are not graduated also?

A. Quite likely.

Q. You state you went in great haste to the basement on being advised that Dr. Kebler, was in your factory. Why did you exercise such great haste in getting down into that basement, Mr. Candler?

A. Well, that was the most important thing to be done or attended to at that time, as I considered it.

Q. Why did you consider it so ultra-important because Dr. Kebler, a pure-food inspector was there, and be in such a hurry to get into the basement?

A. I wanted to give him such assistance as he needed, to intelligently inspect the plant.

Q. You went without taking off your coat and hat — you made a dash into the basement?

A. Yes, sir; I went.

Q. You went down there to assist Dr. Kebler?

A. Yes, sir; to give him such assistance as a stranger necessarily needs in a strange place.

Q. Well, Dr. Kebler was not a stranger in that factory?

A. He said he was quite an extensive traveler, and it is very hard to remember all these factories—and I know from the Doctor's testimony that he didn't remember ours very well.

Q. You were afraid he might get lost?

A. No, sir; I was afraid he would want to know something and there would be nobody who could answer but me.

Q. You therefore went in great haste without taking off your hat down into the factory to find Dr. Kebler?

A. Yes, sir.

Q. And that was your only object?

A. I wanted to be there while he was there so he could ask such questions as he wanted to.

Q. How high is that stringer you talk about, that you

say Dr. Kebler was on, from the floor, from the basement floor?

A. I should judge about nine feet.

Q. And now, what is the distance from the basement floor to the bottom of the tank?

A. Why, nine feet, I think, in addition to the thickness of the stringer, which is about two inches.

Q. Then it would be about twelve inches from the basement floor up to the end of what you term the stringer?

A. Yes, sir; that is right.

Q. What do you mean by the term "stringer"?

A. That is the foundation girder, or the girder itself, the component parts making up the girder, on which the tank rests.

Q. That is the part of the form surrounding the tank which holds it in position?

A. Yes, sir; extends twelve to fifteen inches from the tank so as to accommodate the expansion rod that goes up.

Q. Well, there was no room there for Dr. Kebler to lie down on that place?

A. No sir.

Q. You didn't find him lying down on that place, but he was looking over into the kettle?

A. No, sir.

Q. And that is the only way to see inside of that tank—I should have said tank in the previous question — the only way would have been to have gotten on the end of the stringer to make an inspection so as to see inside of the tank?

A. Yes, sir.

Q. You were not alarmed or exercised about that?

A. No, sir; I was not alarmed, but I was necessarily surprised to find him up in that part, and nobody knew he was there.

Q. Is that not the way to make an inspection?

A. I submit he ought to have had me when he made his inspection.

Q. Well, you say you went down there to help him make it?

A. Yes, sir.

Q. Your purpose was to go down there and help him?

A. Yes, sir.

Q. And he was doing that when you helped him—

A. (Interrupting.) Yes, sir; I think it is courtesy.

Q. You think it is purely a breach of courtesy, as you understand it?

A. Yes, sir; purely so.

Q. Don't you know that the only way to make a proper

inspection is not to give the people notice before you go there to inspect, because they will always clean up?

Mr. Sizer: I object to that.

The Court: Yes, the objection is sustained, it is a question to be answered by the jury so far as it is material.

BY MR. SIZER:

Q. What is the date of your sending of that letter to Doctor Caspari at St. Louis?

A. I will have to look it up. That was the latter part of January, 1910.

Q. What was that?

A. That I sent to him—the two bottles.

Q. The two bottles of what?

A. I will tell you. One bottle consisted of Coca-Cola syrup, and one bottle consisted of all the ingredients of Coca-Cola syrup with Merchandise No. 5 left out.

Q. And where did you get that from?

A. I made it.

Q. Did you get it out of this mixture that was seized?

A. No, sir.

Q. Well, from what receptacle did you draw it?

A. From the ordinary receptacle in the place there—I made the bottle containing the ingredients without the Merchandise No. 5.

Q. Where did you get these bottles to start with?

A. I don't know; the ordinary channel.

Q. Do you recall where you got that bottle?

A. I can't see that amounts to anything.

Q. Well, I say, do you recall where you got them?

A. No, sir; I do not.

Q. Do you recall who it was that drew the Coca-Cola syrup and brought it to you?

A. I did that myself.

Q. From what receptacle did you take it?

A. From the tank in which we manufactured it.

Q. And that was done on the day it was sent out?

A. Yes, sir.

Q. And that is—you mean, you made it up at that time?

A. Yes, sir.

Q. Now then, what was this other ingredient you sent to him?

A. I sent him a bottle containing all the ingredients of Coca-Cola syrup except Merchandise No. 5.

Q. This first one you added the Merchandise No. 5 to?

A. No, sir; It was made in the regular manufacture.

Q. And in the second instance?

A. I made that specially.

Q. You don't know where you got that bottle?
A. No, sir.
Q. Did you draw that personally?
A. No, sir; I manufactured it in the laboratory.
Q. You don't know who brought that mixture to you to be sent out?
A. No, sir; no one brought it to me, I made it myself.
Q. You made that up in your laboratory?
A. Yes, sir.
Q. And you included in that what ingredients?
A. All of the ingredients necessary to make Coca-Cola syrup except Merchandise No. 5.
Q. What are they, in what proportion did you mix them?
A. Well, I mixed them in the proportion as per our formula.
Q. What is that formula?
Mr. Sizer: I object to that.
The Court: The witness has said he sent some ——
Mr. Sizer: He says he sent one containing all the ingredients of the Coca-Cola syrup in the proportion in which they are found in the syrup except Merchandise No. 5.
The Court: Well, there is no way to find out what they are without his stating ——
The Witness: I will tell you what they are but not how much.
Mr. Sizer: The Act provides — there is nothing in the Act to require any manufacturer of a proprietary food not containing any unwholesome ingredient to disclose his for mula ——
The Court: I will exclude the evidence as to the bottles ——
The Witness: I can tell you, your Honor.
The Court: Well, it is entirely a matter for the witness — we can't have evidence of analyses of bottles unless we know what is in them.
Mr. Sizer: The analyses will show what is in the bottles. We submit it is competent to show by this witness that he sent bottles containing the ingredients in the Coca-Cola syrup except Merchandise No. 5, and it is for the analycist to show what was in it, show by the result ——
The Court: The analysis would just be an analysis, and does not show just what he sent — I do not see the materiality of it either way ——
Mr. Sizer: It may be material in some aspects of the case.
Mr. Miller: Our position is this: This man says he made up a certain mixture and sent to Doctor Caspari, I

do not know what chemical changes it undergoes by being brought into combination, with other things, and unless this question is withdrawn I ask this witness to answer——

The Court: I tell him not to answer, I reserve the question until they come to introduce the witness to testify as to the analyses of the bottles ——

Mr. Sizer: Mr. Candler says he has no objection to making a statement — I don't care to interpose an objection except for protection of the formula ——

The Court: We will take a twenty-minute recess.

(Thereupon the Court, at 12 o'clock noon, adjourned until 2 o'clock P. M. of the same day.)

AFTER RECESS.

(Thereupon, court met pursuant to adjournment for recess, at 12.20 o'clock.)

CLAIMANT'S EVIDENCE CONTINUED.

HOWARD CANDLER,

resumed the stand for further cross-examination and testified as follows:

Mr. Sizer: We want to say we withdraw any objection to Mr. Candler stating exactly what he put in the bottles that he sent to Dr. Caspari, in which he stated he put all the ingredients of Coca-Cola except Merchandise No. 5.

The Court: He may state.

Mr. Miller: Or he may give it to our chemist, or he may make the statement publicly.

Mr. Sizer: He will furnish it.

Mr. Hirsch: We suggest that he gives you the formula, give it to your chemist.

Mr. Miller: We are perfectly willing to that.

The Court: Then, that may be done.

BY MR. MILLER:

Q. Now in connection with that transmission to Dr. Caspari, did you advise him of the contents of this mixture?

A. No, sir, except stating that the bottles were labeled No. 1 and No. 2.

Q. How did you transmit these bottles?

A. Either by registered mail or express; I have forgotten now which. It was largely an incidental matter.

Q. How was that?

A. It was largely an incidental matter. Mr. Hirsch called me up one morning and told me to fix up that compound and send them to Dr. Caspari and Mallett.

Q. Now, in each instance did you—

A. (Interrupting) I told Mr. Hirsch what the contents of the bottles were; I gave him the key to the bottles.

Q. Now, did you communicate with Drs. Caspari and Mallett in that connection?

A. I did not communicate with Dr. Caspari; I am rather of the opinion that I wrote to Dr. Mallett in answer to an interrogation from him relative to them; I am not sure on that however.

Q. Well, if you did, you kept a copy of the correspondence, did you?

A. Yes sir.

Q. Well, would you oblige us by filing it?

A. I haven't it here; it is in the files in the Atlanta office, I suppose.

Q. Well, you can get that before the trial closes?

A. I can't tell you; you know how those things are —

Mr. Hirsch: Dr. Mallett has his entire file with him and I understand Dr. Caspari has, and they will be given to you if they can possibly be located.

Mr. Miller: That will be all right.

BY MR. MILLER:

Q. You did advise Mr. Hirsch of what you sent?

A. Yes, I gave him a key to the solution—

Q. Now you say that Mr. Lynch bought merchandise No. 5?

A. Yes, that is my recollection.

Q. And, as No. 5, merchandise No. 5 was prepared prior to the time when you bought it from the Schaeffer Alkaloid Works you used Coca leaves you say?

A. Yes.

Q. Can you tell us the process which was undertaken and what the result was after the treating process?

A. I understood this examination was as to the goods that were seized?

Q. Sir?

A. I don't know that that has anything to do with the case; I suppose this was as to the goods seized in 1909.

Mr. Sizer: If you know anything about that process that was being used—

The Witness: Yes, I knew about it.

BY MR. MILLER:

Q. Tell us what was done? What you term as the key to it?

A. We buy the whole leaf in bales and grind it in a mill—we also buy cola nuts in bags and mix them—I have forgotten the proportions, it has been so long, in a

perculator—first mixed up in what we call a wooden bog, wetted them down together with a certain quantity—just a crude box for packing and added a certain quantity of phosphate of lime and after they were thoroughly wetted pack them in the percurator, so called magma—and let them stand possibly twenty-four hours, and then we put on them dilute alcohol, to which the white or a white California wine had been added in some proportion, the exact proportion I forget, and let it run out to a stated quantity, in other words a reservoir under them, and when the quantity that we have figured on making was run out we would stop the process.

Q. Are you prepared to state the contents of Merchandise No. 5 as you prepared it, or the ingredients of Merchandise No. 5; give us what they were, the chemical analysis as to—

A. (Interrupting) I made no chemical analysis of any of them.

Q. You are not prepared to state what was in Merchandise No. 5?

A. Except as I have stated to you.

Q. That is all—

A. (Interrupting) I know nothing as to results.

Q. Know nothing as to results?

A. No, sir.

Q. Now, when was it that you ceased to manufacture merchandise No. 5?

A. I don't remember the exact date.

Q. Well, approximately, Mr. Candler?

A. I rather think probably in 1900 or 1899 or 1901.

The Court: A witness whose deposition was taken by the Government shows the exact date.

Mr. Miller: What witness is that?

The Court: As to when Schaeffer began making it.

Mr. Miller: That deposition has not been read.

The Court: Or the deposition of someone.

Mr. Hirsch: Dubois stated it, didn't he?

Mr. Miller: I think not.

The Court: You took the deposition of someone.

Mr. Miller: I read the deposition of DuBois who testified that he furnished the Coca-Cola Company with caffeine and Merchandise No. 5.

The Court: He didn't show the date then.

Mr. Miller: I do not recall it.

The Court: Well, you may proceed.

BY MR. MILLER:

Q. You think you did not prepare any of this merchan-

dise No. 5, and that you ceased to manufacture it after 1899 or 1900, is that correct?

A. Or 1901; I don't remember but along in that period.

Q. And as I caught your statement you did not examine or make a chemical analysis, and you don't know what its contents were except you saw the leaves being treated during that time?

A. That is all; I treated the leaves myself, as I described.

Q. You don't know whether the leaves as treated by you is the same way they are treated, if they are treated at the present time?

A. Why no, they are not treated as was pointed out to me by Dr. Schaeffer the way he treats them. The Schaeffer method appeared to be an improvement over our method.

Q. So, of all this product that was seized in the present case—was any of it sent to either Dr. Caspari or Mallet?

A. Not by me.

Q. And was not that that was made up at that time that was sent to either of them?

A. I don't know; that was not the stuff I sent to them you understand.

Q. So far as you know there was none of that sent to them?

A. No sir.

Q. Now, you introduce certain pamphlets or price lists here, and I will ask you to refer to three of them, and state if you find any coca leaves listed in there, and if not under what is it listed?

A. I see leaves in this American Druggist—two kinds of coca leaves, under the general heading of leaves.

Q. And it is listed as "coca" is it?

A. No, that word "coca" there is simply to save time or space in the literature, of putting down leaves every time.

Q. Now, turn to the next one?

A. There is cola nuts, and the same comment applies to this; simply the putting of the word "leaves" at the top of the classification and underneath these are all kinds of leaves amongst them, there is the sage ——

Q. (Interrupting) And it is listed as "coca"?

A. No, as coca leaves.

Q. No "leaves" follow it?

A. But it is under the classification of "leaves". The same comment applies to the Practical Druggist under the classification of leaves.

Q. Now, then I will ask you as a pharmacist, and you say you are a pharmacist—

A. (Interrupting) No, sir, I didn't say I was.

Q. How is that?

A. I helped a chemist or pharmacist in drug stores.

Q. And you are not prepared to say whether or not coca leaf and coca are used interchangeably?

A. Except in business,—not having read—

Q. (Interrupting) I am speaking from your personal experience and observation?

A. I have never heard of them under any other term than coca leaves and coca—

Q. Are you able to state from your experience?

A. As to what point?

Q. As to whether or not coca and coca leaves are used indiscriminately?

A. Not from my knowledge is it used indiscriminately.

Q. To what does "coca" refer?

A. Coca leaves.

Q. Well, that is what I thought—when you say "coca" you mean "coca leaf"?

A. Yes, that is the way I understand it.

Q. And the active principle or ingredient of that is cocaine?

A. I don't know, I have only read of it.

Q. Did you advise Dr. Emerson or Dr. Wesener when you transmitted these bottles to them what they contained?

A. I did not advise Dr. Wesener, but I advised Dr. Emerson.

Q. Have you a copy of that letter?

A. Dr. Emerson has it.

Mr. Hirsch: Dr. Emerson has it here.

BY MR. MILLER:

Q. Do you know the process for making Merchandise No. 5 as it was made in your factory?

A. I think I answered that question.

Q. Well, did you or not answer that, or did you say you didn't know what it was?

A. I didn't know what the result was.

Q. Did you employ a chemist at that time?

A. No sir.

Q. You did not employ any chemist?

A. No sir, not then.

Q. And you didn't have any chemical analysis made at that time?

A. No sir.

Q. Did you ever have a chemical analysis made of Merchandise No. 5 as it was manufactured in your factory Mr. Candler?

A. Not of my knowledge. I think there were numbers made though; I see results of them at various places.

Q. Can you give the proportion of Merchandise No. 5 which goes into the batch of the mixture as it was made up in October 1909?

A. Yes sir.

Q. What was it?

A. We used 15 gallons of Merchandise No. 5 to 1250 gallons of the finished product.

Q. Are you or not able to say whether or not cocaine was extracted from the leaves when Merchandise No. 5 was made up in your factory?

A. It was not our intention to have cocaine in it.

Q. Sir?

A. We were not trying to get cocaine out of the leaves.

Q. And that continued up until probably as late as 1901?

A. Yes, that is my indefinite information, sir, or recollection.

Mr. Miller: I believe we have made an agreement about the point that this witness shall give the ingredients of the bottles that he sent to Dr. Caspari to one of our chemists?

Mr. Hirsch: Yes.

RE-EXAMINATION

BY MR. SIZER:

Q. You were not trying to get cocaine out of the coca leaves, you mean you were not trying to use cocaine in the mixture?

Mr. Miller: I object to that.

The Court: Well the answer was rather ambiguous—let him answer that?

The Witness: I say when we made Merchandise No. 5 we had no intention of getting cocaine out of the coca leaves.

BY THE COURT:

Q. You mean in producing it or eliminating it?

A. I meant of producing it.

BY MR. SIZER:

Q. Do you know whether or not the purpose of the treatment given the coca leave was to take the cocaine out of it before it was used in Merchandise No. 5?

A. I don't know as to that.

Q. You say you are not a chemist?

A. No sir.

Q. You did not have a chemist connected with the factory at that time?

A. No sir.

Q. Was your father a chemist?

A. I don't think so; I don't think he would be constituted a chemist; he was a pharmacist.

Q. How was that?

A. He was a pharmacist.

Q. And he compounded his own mixtures at that time?

A. Yes sir.

Q. Now, why was it that you made what you called four meltings of this syrup at this factory.

A. It simply saved the size of a kettle; we could have manufactured the entire product if we had had a 1200 gallon kettle and it saved the installation of four different kettles.

Q. Then, you didn't have large enough kettle to make 1250 gallons in?

A. That is exactly right.

Q. What is the difference between the amount of the caffeine in a mixing tank filled with the bottler's syrup and one filled with the fountain syrup?

A. The bottlers syrup had twenty five pounds to 1250 gallons and the fountain syrup had twenty eight pounds to 1250 gallons.

Q. Now, about that water closet, Mr. Candler; did you ever know of a water closet without a door to it?

A. No sir.

Mr. Miller: I object to that.

The Court: The objection is sustained.

Mr. Miller: He is not qualified as an expert on sanitary arrangements, as I understand it.

Mr. Sizer: I believe that is all. No, I will ask him another question.

BY MR. SIZER:

Q. How are those operatives dressed?

A. Well, in overalls.

Q. Do they put those overalls on when they come in from the street and before they go to work?

BY MR. SIZER:

Q. I will ask you one more question — about that stirring, the stirring of the syrup in that kettle on the first floor there, could you say how it was stirred?

A. Yes, sir, that kettle had in it a stirring apparatus (indicating on blackboard) which was built something like that and attached at the bottom of a shaft, that shaft was attached at the top to a cog wheel, and that was conneced on the counter shaft ——

Q. (Interrupting) Please stand around so the jury can see it?

A. All right. That was connected, the counter shaft attached to it, which was or had on it a loose pulley.

Q. With blades in it?

A. Yes, sir, two blades so as to facilitate the solution of sugar.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. If I understand you, you did not know prior to 1901 whether the cocaine was extracted from the coca leaves or not?

A. No, sir.

Q. You do not know whether coca leaves contain cocaine or not?

A. No, not of my own knowledge.

Q. Now, as to the mixing. You heard the testimony of Dr. Fuller, didn't you, given in evidence here?

A. Yes. sir.

Q. As to the three analyses that were made?

A. Yes, sir.

Q. Now, how do you account for the fact, if you can account for it, that there was an analyses that ranges from nine tenths of one grain of caffeine in one ounce of the mixture, in one of the portions, and varying from that up to one grain and approximately two fifths of a grain in another ounce, if you can account for that ——

Mr. Sizer: (Interrupting) The witness has not qualified as an expert on that.

Mr. Miller: I ask you if you can account for it — I do not pretend to say, your Honor, he cannot account for it, or that it cannot be accounted for, but I want to know if he knows of any method by which it can be accounted for ——

The Court: You may ask the witness this question, — assuming that it be a fact that different portions of the coca cola syrup contain on accurate analyses, varying amounts of caffeine, ask the witness — I mean in an ounce — ask him if he can account for that difference.

BY MR. MILLER:

Q. Now, assuming that three analyses were made of the seized goods, and one of them contained ——

The Court: (Interrupting) Without assuming there was any seizure or anything else — but assume there were three analyses that showed a difference.

BY MR. MILLER:

Q. Now, assuming that three analyses were made of that product, coca cola syrup, that one of them contained

9-10ths of a grain of caffeine per ounce, the other one as given by Dr. Fuller ——

The Court: (Interrupting) Without reference to any witness' testimony, assume there were three analyses — showing so much ——

BY MR. MILLER:

Q. Now, that one contained 9-10ths of a grain in an ounce of the syrup, and another one 1.19 per ounce, and the other percentage between the two that I have indicated, is there or not anything in your mixing process that would account for that variation in the percentage of caffeine and if so what is it to your knowledge?

A. There isn't anything that would account for that in our mixing process. Your own witness answered that question by stating — your own witnesses did — by stating that they used different methods, which could account for it.

Q. That was Doctor Emery?

A. Yes, sir.

Q. You refer to Dr. Emery?

A. Yes, sir, he testified he found a different result from Mr. Fuller.

The Court: I do not think this witness ought to be asked to pass on the accuracy of the analyses.

Mr. Miller: Then I move to strike out that portion of the answer because it is not responsive to what I asked the witness.

The Court: That may be done.

(Witness excused).

G. L. MITCHELL,

the next witness called upon behalf of the claimant and intervenor, Coca Cola Company, testified:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Where do you live?

A. Atlanta.

Q. What is your connection with the Coca Cola Company?

A. I am manager of the manufacturing department.

Q. And, did you occupy that same position in October, 1909?

A. Yes, sir.

Q. As manager is it your duty among other things to see that the premises are kept clean?

A. Yes, it is.

Q. How, are the premises cleaned in that factory?

A. Well, they are scrubbed with water and a hose —

We have mops and brooms to clean the factory with.

Q. You have water connection by which the water can be turned on through the house?

A. Yes, sir.

Mr. Miller: I object to that question, it is very suggestive.

The Court: Yes, you just state fully what you did in that respect.

BY MR. SIZER:

Q. How often is that done, how often were the manufacturing premises, those two floors, cleaned out?

A. Well, three or four times a week, or just as often as necessary.

Q. How often are the kettles and mixing tanks and other containers cleaned?

A. Well, a tank is hardly ever used a second time or the storage or mixing tank without being washed out.

Q. And the kettles or cooling tanks are they also cleaned periodically?

A. Yes, sir.

Q. Is it among your duties also to see that the operatives are dressed properly and take proper precautions to insure cleanliness?

A. It is.

A. Yes, sir.

Q. Do they have shoes that they wear only in the factory and do not wear on the outside?

A. Yes, sir.

Mr. Miller: These questions are very objectionable, your Honor ——

The Court: Yes, these questions are suggestive.

Mr. Sizer: I thought I might shorten it.

The Court: There is objection made to them, and I will exclude them.

Mr. Sizer: Does your Honor strike out these answers; if you do I will go over ——

The Court: No, I will not strike them out this time.

BY MR. SIZER:

Q. Do you know this negro Gaston?

A. Yes, sir.

Q. Who is termed the cook?

A. Yes, sir.

Q. How long has he been in the employ of your company?

A. Well, since I have been there, to my knowledge five or six years.

Q. Does he chew tobacco?

A. No, not that I know of.

Q. Did you ever see him around that kettle with nothing but an undershirt on?

A. No.

Q. What does he wear when he is up there?

A. Overalls and a jacket.

Q. On what part of his body — or first, I will ask you on the upper part of his body what does he wear?

A. A jacket.

Q. Do you know Mr. Asa G. Candler, president of the company?

A. Yes, sir.

Q. I want to ask you if he is or is not a man who uses profane language?

A. Why he is not.

Mr. Sizer: You may cross-examine.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Did you ever see President Candler get wrought up and get very much excited when he was confronted with a government inspector, Mr. Mitchell?

A. No, sir, I was not present.

Q. You were not present at that time?

A. No, sir.

Q. You don't know but what he might give vent to on occasions like that?

The Court: Well, he says he don't know.

BY MR. MILLER:

Q. All you mean is that in ordinary conversation he does not swear — that is all you profess to state, is it?

A. Well, from general knowledge of him for the last five years, I have never heard him.

Q. You never heard him swear?

A. No.

Q. You have gotten along very pleasantly with him?

A. Yes, sir.

Q. You are still in the employ of the Coca Cola Company?

A. Yes, sir.

Q. This negro Gaston you stated that that you didn't see chewing tobacco there?

A. No, sir.

Q. And from that you judge that he didn't chew?

A. Yes.

Q. That is the fact, is it?

A. Yes, sir.

Q. Now, do you know or do you recall the dates of October 18, 19, 20, 21 and 22, 1909, specifically, Mr. Mitchell?

A. Well, not only the date that Mr. Kebler and Mr. Lynch were there on one occasion, that is the only time I remember.

Q. Where were you on that occasion?

A. Well, I was there in the factory — I don't know exactly where.

Q. Well, do you recall what part of the factory you were in?

A. I think I was on the manufacturing floor there; on the ground floor.

Q. Do you recall what you were doing?

A. Why, I don't know at this time, no sir.

Q. Do you recall how long they stayed?

A. No, sir, I do not.

Q. All you know is that you just have a faint recollection of the fact that they were there about that time?

A. Yes, I remember when they came in or right after they came into the factory.

Q. That is the extent of your recollection?

A. I don't know how long they stayed there. Mr. Candler taken charge of them after they came in.

Q. And further than that you don't know?

A. No, sir.

Q. Do you keep any record of the cleanings or how often the floor is cleaned or anything of that sort to refresh your recollection by?

A. Why, no, sir, I only know it was done as often as necessary. It was cleaned at least three times a week.

Q. At least three times a week?

A. Yes, sir.

Q. And that was as often, in your opinion, as was necessary?

A. Yes, sir.

Q. That was as often as you washed it?

A. You couldn't use these storage tanks more than that in that time.

Q. Are you a practitioner of medicine?

A. No, sir.

Q. Or a bacteriologist or anything of that kind?

A. No, sir.

Q. And you simply cleaned them us as often as you thought they ought to be cleaned?

A. Yes, sir.

Q. What did you do in the cleaning of the stairway?

A. Why we could wash that like we did the other floor?

Q. What is "No. 5"?

A. No. 5 is an extract made from coca leaf and cola nut.

Q. Is that generally and popularly known as "Merchandise No. 5"?

A. No.

Q. What is Merchandise No. 5 as distinguished from No. 5?

A. It is called Merchandise No. 5.

Q. Then, what you referred to a moment ago as "No. 5" is the same as "Merchandise No. 5"?

A. Exactly.

Q. State whether or not samples of No. 5, or Merchandise No. 5, were furnished some months since by your manufacturing plant to the Bureau of Chemistry at Washington?

A. They were at various times, as I can recollect, asked for, samples of Merchandise No. 5, by the Bureau of Agriculture, as I understand, in Washington, and were supplied.

Q. State whether or not these samples of merchandise No. 5, furnished to the governmental authorities at Washington, were fair and average samples of such merchandise?

A. I regarded them as fair and average samples.

Q. Were they or not fair and average samples of that article known as Merchandise No. 5, as it has been produced by your plant and shipped to or for the Coca Cola Company for the past few years?

A. The samples were the same in quality as the shipments made to the Coca Cola Company.

Q. For how long have you been, or has your plant been manufacturing Merchandise No. 5 for the Coca Cola Company, of Atlanta, Ga.?

A. I could not give you the exact date; I think it is about eight years, seven or eight years, I couldn't give you the exact date, it is about seven or eight years, though.

Q. You say that product is manufactured from the coca leaf and the cola nut?

A. Yes.

Q. Where do you obtain the coca leaf from, that is used in that manufacture?

A. I buy the coca leaf which is used for the manufacture of No. 5 in South America.

Q. Is it or not a plant that grows in South America?

A. Yes.

Q. And where does the cola nut come from?

A. The cola nut I buy in the market in New York.

Q. And where is it produced or grown?

A. The cola nut grows in Africa, chiefly in Africa, and West India.

Q. When you receive the coca leaf which is used in this Merchandise No. 5 is it or not dried?

A. It is not especially dry, it is the coca leaf as it is shipped from South America to Europe and to America for the manufacture of cocaine.

Q. Is it or not what is termed dried?

A. The coca leaf in order to enable transportation across the ocean has to be dried or it would start fermentation. The coca leaf as it is used in South America for chewing purposes is in a more humid fresh state.

Q. Is the cola nut when you receive it for use in the manufacture of Merchandise No. 5 dried or not?

A. I use the cola nut as it is put on the market.

Q. Is that what would be termed as dry or otherwise?

A. I understand this nut has been dried, too, but whether it has been dried with artificial heat or air dried or dried in the sun, I couldn't tell you that. I think the nut has been dried to some extent to prevent fermentation, too.

Q. What is the basic or active principle of the coca leaf?

A. The coca leaf contains a number of organic bodies. Its commercial principal substance is cocaine. There are outside of cocaine extractive bodies in the coca leaf.

Q. As popularly used are coca and the coca leaf synonymous?

A. I might say yes.

Q. The chief or active principle in both as well as the commercial feature is cocaine?

A. The chief active principle is cocaine.

Q. State whether or not you are a manufacturer or producer of cocaine?

A. I am a manufacturer of cocaine.

Q. Under what name, corporate or otherwise, is your business conducted?

A. The corporation manufacturing alkaloids in Maywood of which I am president is the Schaeffer Alkaloid Works.

Q. And this corporation produces Merchandise No. 5 about which you have been interrogated?

A. Yes.

Q. Now, what is the basic or active principle of the cola nut? In the condition that you get it, I mean?

A. There is caffeine or glucoside of the caffeine in cola nut, extractive matter.

Q. What is the chief agent in the cola nut, I mean as

you get it?

A. Caffeine and extractive matter.

Q. What do you mean by extractive matter?

A. By extractive matter I mean a number of organic bodies which can be taken out from the cola nut by making an extraction with a solvent.

Q. After you have prepared the compound or extract or mixture known as Merchandise No. 5 for the Coca Cola Company, of Atlanta, Ga., what do you do with it?

A. I burn the residue up.

Q. I mean what do you do with the Merchandise No. 5?

A. Merchandise No. 5 I send to the Roessler & Hasslacher Chemical Company, New York.

Q. Does this Merchandise No. 5 as it is prepared by you include the kolinin as it comes from the cola nut, or as it is found in the cola nut?

A. I never analyzed it for kolinin.

Q. Is there any process of the manufacture that would extract such proportion of kolinin as inheres in the cola nut as it comes to you?

A. I never made investigations along that line.

Q. You have stated that this merchandise was sent to The Roessler & Hasslacher Chemical Co., in New York?

A. Yes.

Q. Are these shipments to New York by your plant under and pursuant to your contract with the Coca Cola Company?

A. Yes, sir.

Q. Do you know whether or not there is any addition to this Merchandise No. 5 after it leaves your plant or factory and prior to its receipt by the Coca Cola Company, or its branches?

A. There is no addition made.

Q. Then it is received by the Coca-Cola Company, in Atlanta, Georgia, or its branches, in the same condition, that is, containing the same substances and in the same proportions as it leaves your plant?

A. Absolutely the same.

Q. What is the function or office of the Roessler & Hasslacher Chemical Company here in New York?

A. They are agents for the Schaeffer Alkaloid Works regarding the sale of caffeine and Merchandise No. 5.

Q. Distributing agents?

A. Yes, sir.

Q. How are remittances or payments for this Merchandise No. 5 made to and received by your company as the manufacturer or producer thereof?

A. The Coca-Cola Company makes remittances for

goods received to the Roessler & Hasslacher Chemical Company, and the Roessler & Hasslacher Chemical Company remits the amount received less certain commission to the Schaeffer Alkaloid Works.

Q. Are you a stockholder in the Roessler & Hasslacher Chemical Company here in New York?

A. No sir.

Q. Now, state whether or not you supply any other substances to the Coca-Cola Company aside from Merchandise No. 5, and if so what?

A. I supply the Coca-Cola Company outside of Merchandise No. 5, caffeine.

Q. And how is that sent, direct or through the Roessler & Hasslacher Chemical Company here in New York?

A. It is done in the same way as the shipments of Merchandise No. 5 are made. The shipments are made by the Roessler & Hasslacher Chemical Company.

Q. And the remittances are made in the same way?

A. Yes sir, remittances are made and accepted in the same way.

Q. From what is the caffeine produced that you supply to the Coca-Cola Company in this way?

A. Caffeine is produced in Maywood chiefly from tea dust.

Q. And what do you mean by tea dust?

A. Tea dust is the siftings from the tea.

Q. And what is meant by the siftings from tea?

A. Tea siftings are small fragments of broken tea leaves which are sifted out in the tea producing countries to give the tea a uniform appearance and to bring it in a form which gives with the least effort a clear infusion. A certain percentage of tea dust will have the tendency to make a turbid infusion.

Q. This tea dust or siftings sells at a lower price than the better grade of the tea?

A. Yes.

Q. Where do you buy tea chiefly that is used in the manufacture of the caffeine that is supplied to the Coca-Cola Company.

A. I buy the tea chiefly in India and in Japan.

Q. In your manufacturing plant state whether or not you produce large quantities of cocaine and other drugs?

A. I produce in my factory large quantities of cocaine you mean?

Q. Yes, cocaine?

A. Cocaine and other drugs.

Q. You are one of the largest manufacturers in the world are you not?

A. I am one of the largest manufacturers in a few of the items in the world which I produce.

Q. And among these are caffeine and cocaine?

A. Yes, sir.

Q. Do you or not extract cocaine from the coca leaves that are used in the production of Merchandise No. 5?

A. Yes, I do.

Q. What is done with the cocaine thus extracted?

A. I purify it and sell it as cocaine.

Q. Is all of the caffeine that you sell to the Coca-Cola Company produced from the tea leaf?

A. Well, there is a certain percentage of the deliveries to the Coca-Cola Company produced from the coffee beans.

Q. Is there anything else used by your plant in the production of caffeine that is supplied to the Coca-Cola Company aside from the tea leaf and coffee bean?

A. No.

Q. Is this Merchandise No. 5 supplied by you exclusively to the Coca-Cola Company?

A. Yes.

Q. And what was the quantity supplied during the year 1909?

A. I have not the figures with me. They can be given to you by calling my office.

Q. Well, you furnish a statement of that quantity and file it as Exhibit No. 1 to this deposition?

A. Yes.

Q. You can send it to Mr. Edward Hacker, the reporter at Knoxville, Tennessee, to be attached to your deposition as Exhibit No. 1?

A. Yes, I will.

(The statement called for was furnished, and is hereto attached marked Exhibit No. 1, and is in the following words and figures, to-wit:

(This said deposition of Doctor L. Schaeffer was thereupon read in evidence as follows:)

"Schaeffer Alkaloid Works,
Maywood, New Jersey,
October 20, 1910.

Mr. E. Hacker,
Knoxville, Tenn.

Dear Sir:

As per your request, I beg to inform you that the deliveries of Merchandise No. 5 to the Coca-Cola Co., during 1909 amounted to 41,965 1-2 gallons.

I beg to remain,
Yours very truly,
DR. LOUIS SCHAEFFER."

EXAMINATION CONTINUED,
BY MR. MILLER:

Q. State whether or not the caffeine furnished by you to the Coca-Cola Company in the form of caffeine is subsequently added to the compound or mixture into which enters this Merchandise No. 5 in making up the coca cola syrup that is served and distributed by it to the various retailers throughout the country for serving drinks at fountains?

A. I understand the Coca-Cola Company has used it in their formula for the coca cola syrup.

Q. That is to say in addition to No. 5?

A. They use in that formula Merchandise No. 5.

Q. And in addition to that, the caffeine which you supply the Coca-Cola Company is also an added ingredient?

A. It is another constituent.

Mr. Miller: I object to any construction by him. We say it is added to this mixture.

Mr. Sizer: And we say it is not.

Mr. Miller: And we have proved it.

Mr. Sizer: You have not proved anything of the kind.

Mr. Miller: He says it is a constituent according to his information.

Mr. Sizer: He does not say that.

Mr. Miller. I understood that.

Mr. Sizer: The question is, that is to say, in addition to No. 5, and the answer is they use it in that formula, Merchandise No. 5. (Reading:)

"Q. And enters into the syrup?

A. Into the formula of the syrup.

Q. Is this caffeine that you furnish to the Coca-Cola Company and that has been furnished for a number of years past, by your plant pure caffeine?

A. Yes, sir.

Q. For how many years have you been supplying the Coca-Cola Company with caffeine as well as Merchandise No. 5.

A. Why, as I can say off-hand, about ten to twelve years I have supplied them caffeine, ten to twelve years caffeine, and, as aforesaid, about eight years Merchandise No. 5.

Q. What are the proportions or quantities, I should say, of the coca leaf and the kola nut that are used in or consumed in the production of say, one hundred pounds of Merchandise No. 5, or one hundred gallons, say?

A. I must decline answering this question because it is a part of my trade secret to produce Merchandise No. 5."

Mr. Miller: Right there we object to any further read-

ing of the deposition because he refuses to answer the question.

The Court: What was that question?

Mr. Sizer: (Reading:)

"Q. What are the proportions or quantities, I should say, of the cola leaf and the kola nut that are used in or consumed in the production of say, one hundred pounds of Merchandise No. 5, or one hundred gallons, say?

A. I must decline answering this question because it is a part of my trade secret to produce Merchandise No. 5."

I submit that is entirely irrelevant in this case and is a trade secret which he cannot be required to state.

The Court: I don't think it is his trade secret. He is employed to make up what they call Merchandise No. 5, and it is not his trade secret.

Mr. Sizer: The method by which he makes that is his trade secret.

Mr. Sizer: The method by which he makes that is his trade secret. That is the reason he was employed by the Coca-Cola Co., they knew what they wanted but not exactly how to get it.

The Court: What is that question, again?

Mr. Sizer: The question is this: (Reading)

"Q. What are the proportions or quantities, I should say, of the coca leaf and the kola nut that are used in or consumed in the production of say, one hundred pounds of Merchandise No. 5, or one hundred gallons, say?

A. I must decline answering this question because it is a part of my trade secret to produce Merchandise No. 5."

The Court: If this witness declines and does not show anywhere during his deposition as to what amount of coca leaves and kola nuts entered into this Merchandise No. 5, I will exclude it from the fact that it is impossible to tell whether it is in this composition or not.

Mr. Miller: That is the reason we did not offer the deposition based on the Syrup of Figs ruling.

Mr. Sizer: I submit that the question as to what amount of coca leaves and kola nuts is in Merchandise No. 5 is not a question that is essential or important here in ascertaining whether Merchandise No. 5 is an element of this compound. It is an element of it, they say, it has always been used in it and this is entirely irrelevant as to how much coca leaves or kola nuts are in it.

The Court: The whole matter is whether or not in his manufacture of it there is an appreciable quantity of these substances. It may be important as to whether there was an appreciable or was not an appreciable quantity of it,

and if this witness declines to state, there is nothing here to show how much coca leaves or kola nuts he used in making Merchandise No. 5, and the jury cannot determine whether there was an appreciable amount, and all the evidence on that subject should be excluded.

Mr. Sizer: We show that he does not use anything else but coca leaves and kola nuts, and the alcohol he puts in it.

The Court: I don't recall that you have shown that. If he says that later on, then I will rule on that when we come to it, but up to the present he has declined to say how much coca leaves or kola nuts is used in making Merchandise No. 5 and I exclude any statement on the subject.

Mr. Sizer: That same evidence is drawn out in a number of analyses that we have had.

The Court: The witness cannot come in and testify and then decline to state the facts that would make his testimony valuable or not valuable.

Mr. Sizer: Doctor Schaeffer was being examined by the Government.

The Court: But if you want his testimony on that you had better get him here. I don't suggest, it is immaterial to me, but I will not allow his testimony in this deposition if he declines to say how much it is. That is the ruling.

Mr. Sizer: I will go on but I think he covers that point. Another question of similar nature is put and he again declines to answer, and then he goes on. (Reading:)

"BY MR. MILLER:

Q. Through what process do you put the coca leaves and the kola nuts in order to produce this Merchandise No. 5 or by what treatment, what treatment do these substances undergo to produce the product No. 5, or Merchandise No. 5?

A. It is an extraction process of a specific character, devised in the laboratories of the Schaeffer Alkaloid Works to produce an extract from coca leaf and kola nut which is absolutely free from cocaine.

Q. Well, I have asked you to state what that process was?

A. I must decline to answer because this is a trade secret of the Schaeffer Alkaloid Works."

Mr. Miller: Now, we have to take his bald statement on that. We cannot verify it by chemists or any other way and we object to it.

The Court: I think that objection is well taken.

Mr. Sizer: I submit that when a chemist is employed — we have tried to make this extract in a certain way. We have found we can get it better made from some other man

through a process that he has invented, and when he is put on the stand simply to testify what is in that Merchandise No. 5, he is not bound to disclose the process by which he makes that Merchandise No. 5.

The Court: You are offering to show that he has a process by which he extracts the cocaine.

Mr. Sizer: He says that this process extracts all the cocaine, that this is entirely free from cocaine.

Mr. Miller: But he might put in one coca leaf or a ton of them, and still that answer of his would be true.

Mr. Sizer: Yes.

Mr. Miller: And I say if he puts in one leaf that would not be an appreciable quantity, and he would not be within the rule.

The Court: I think that is true. The Court and the jury must be in possession of the facts and not of his conclusions.

Mr. Sizer: Now, all in the world we undertake to establish is not how much extract of kola nut or coca leaves there may be in this mixture. We propose to show and will show that this Merchandise No. 5 gives a distinct flavor to the entire product of Coca-Cola syrup, and we show by this witness that this extract is compounded from coca leaves and kola nuts, and it is immaterial whether he takes a very small or a very large part of coca leaves or kola nuts.

The Court: I think the relative degrees or amounts, provided they are material, is unimportant, but I think there must be enough there to make it appreciable, and there is nothing there to show whether it is appreciable or not, and nothing from which anybody could tell whether putting fifteen gallons of the mixture in 1250 gallons of Coca-Cola there would be any appreciable amount of the extract.

Mr. Sizer: The fifteen gallons put in the 1250 gallon mixture shows the amount.

The Court: No. It shows fifteen gallons but whether there is any appreciable quantity of the coca leaves or kola nut we do not know, and we must know the quantity of the coca leaves and kola nuts.

Mr. Sizer: We will show by the other witnesses the result of analyses, but the question they are pressing here — the insistence they are making, is that Doctor Schaeffer is bound to state in answer to their question, his process.

The Court: You offered that for the purpose of showing that there is extract of coca leaf and kola nut in this compound, — Is not that your purpose?

Mr. Sizer: The principal purpose is to show that Mer-

chandise No. 5, being compounded from coca leaves and kola nuts, does not contain cocaine.

The Court: The Government agrees with you on that. You do not have to prove that; everybody agrees that there is no cocaine in it.

Mr. Sizer: The second point is that Merchandise No. 5 is made from coca leaves and kola nuts.

The Court: And on that I rule that evidence to show that the witness put in coca leaves of a quantity not shown which may be entirely inappreciable, is not competent. He must show the quantity so that the Court and jury can determine whether it is appreciable. That is my ruling.

Mr. Sizer: We except to that ruling, and we will show that in the development of the testimony.

The Court: That may be done.

Mr. Miller: But they have not done it.

Mr. Sizer: We cannot show everything at one time.

The Court: Well, we will come to that later. Gentlemen of the jury, I exclude that portion of the statement of this witness to the effect that he uses coca leaves and kola nuts in the manufacture of Merchandise No. 5 under the grounds that you have heard.

Mr. Sizer: (Reading)

CROSS-EXAMINATION,
BY MR. HIRSCH:

Q. Dr. Schaeffer, you stated on direct examination that the Schaeffer Alkaloid Works, of which you are the president, is one of the largest manufacturers of cocaine possibly in the world?

A. Yes.

Q. This manufacturing is carried on at your plant at Maywood, New Jersey?

A. Yes.

Q. You have a secret process by which you manufacture or extract the cocaine, have you not?

A. Yes.

Q. And that process is a trade secret?

A. Yes, sir.

Q. Now then, the process by which you manufacture cocaine — from this process you supply cocaine as it is desired and demanded?

A. To the trade.

Q. To the trade?

A. Yes.

Q. You also stated, Dr. Schaeffer, that you manufacture Merchandise No. 5?

A. Yes, sir.

Q. For the Coca-Cola Company?
A. Yes.
Q. Of Atlanta, Ga.?
A. Yes, sir.
Q. Now, is the same process used in the manufacture of Merchandise No. 5 as is used in manufacturing cocaine for commercial purposes?
A. They are two entirely different processes.
Q. Could you from the residue that is left from the process by which you manufacture your cocaine for commercial purposes, could you out of that residue, or what is left over, make up any part of Merchandise No. 5?
A. Impossible.
Q. Do you from that process by which you make commercial cocaine make up any constituent of Merchandise No. 5?
A. Not one.
Q. Then the residue or what remains over from your process by which you manufacture the commercial cocaine, is it in any way used in the manufacture of Merchandise No. 5?
A. Not one particle of it.
Q. You also stated, Doctor Schaeffer, that you have an especial process by which you manufacture Merchandise No. 5, conceived and invented and prepared by you or by your works or laboratory men in your works?
A. The ideas have been originated by myself personally. ly.
Q. Now, in originating these ideas you originated a process by which you manufacture Merchandise No. 5, did you not?
A. Yes.
Q. Is that, Dr. Schaeffer, a trade secret?
A. Yes.
Q. Is the secret of that process by which you manufacture No. 5 known to the Coca-Cola Company?
A. No.
Q. In working out this process, Doctor, by which you manufacture Merchandise No. 5, was it necessary for you to have special machinery built?
A. It was. I devised and constructed special machinery, totally different from the machinery which I use to manufacture cocaine for the trade.
Q. Now, that special process or special machinery by which you manufacture cocaine for the trade is different, is it not, from your machinery and process by which you manufacture No. 5 for the Coca-Cola Company?
A. It is absolutely different; it is exclusively — this

machinery is — for the manufacture of No. 5 and serves to no other purpose.

Q. Now, Dr. Schaeffer, has Merchandise No. 5 any cocaine in it?

A. It has not.

Q. Now, in this special process by which you manufacture No. 5 for the Coca-Cola Company, is it not a fact that one of the by-products therefrom is cocaine?

A. One of the by-products is cocaine.

Q. And your purpose in using this machinery, this special machinery and special process, is to make merchandise No. 5?

A. The aim of that machinery is the production of Merchandise No. 5.

Q. And it is not the purpose of that process to use the cocaine?

A. The cocaine which I obtain during this process is used subsequently because it is a product of value. The cocaine so obtained I regard as a by-product. The principal object of this machinery is the manufacture of Merchandise No. 5.

Mr. Miller: I object to how he regards cocaine.

The Court: I do not understand that the question of cocaine has anything to do with it one way or the other.

Mr. Sizer: That is true.

Mr. Hirsch: That was on account of a pleading filed at the time the testimony was taken where there was a charge that we used cocaine taken from the coca leaf.

The Court: Well, that is eliminated and it is not competent now.

Mr. Sizer: (Reading)

"Q. Now, is this Merchandise No. 5, or any of the ingredients or contents thereof made up from the refuse product"?

A. I do not make Merchandise No. 5 from any refuse product.

Q. Doctor, you have also stated in your direct examination that you are a large manufacturer of caffeine.

A. Yes.

Q. Is it not true that caffeine is derived from a great number of plants?

A. Yes.

Q. Is it not also true that the caffeine so derived whether derived from the coffee bean or the tea leaf, or tea dust is identical?

A. Absolutely identical.

Q. When you stated that you derived the caffeine from the tea dust, did that mean that it is inferior in quality to

caffeine derived from the tea leaf?

A. It is in every respect the same substance.

Q. Then the so-called commercial caffeine must be the same thing no matter from where it is derived or from what source it is derived?

A. It is the same substance in every respect.

Q. You say, Doctor, that you have been supplying the Coca-Cola Company with caffeine ten or twelve years, and this Merchandise No. 5 seven or eight years?

A. Yes.

Q. How long have you known the product Coca-Cola?

A. Thirteen years.

Q. Thirteen years?

A. Yes, fourteen years, thirteen or fourteen years I have heard of it.

Q. Is this product that you refer to a mixture or compound?

A. Which product?

Q. Coca-Cola?

A. It is a compound.

Q. It is sold as Coca-Cola, do you know, to the retail trade?

A. It is sold to the retail trade as Coca-Cola.

Q. By the word "Compound" do you mean a single chemical compound, or a mixture of chemical compounds?

A. A mixture of chemical compounds; I would say it was a mixture of chemical compounds.

Q. Doctor, was kolotin formerly considered to be a glycoside?

A. There are conflicting opinions or publications regarding kolotin; in fact I have not paid much attention to that substance. My investigation work in my laboratories is more directed to the isolation of substances only to the extent of their interference with the manufacturing processes.

Q. Do you know that the present view is that kolotin is the chemical combination of caffeine and tannic acid?

A. It having no commercial value, I did not specialize myself as to it.

Q. Doctor, you state in your direct examination that the so-called Merchandise No. 5 contained some of the ingredients of the coca leaf and the kola nut, did you not?

A. Yes.

Q. Has merchandise a distinctive taste?

A. Yes.

Q. Is this distinctive taste or flavor imparted to a mixture or compound such as coca cola?

A. Yes.

Q. Now, I understood you to say, Doctor, that as popularly used the words coca and coca leaf are synonomous?

A. They are regarded as synonomous, because coca leaf is the principal part of the coca shrub, having a commercial value.

Q. Now, Doctor, suppose you should take coca and cola and form the words coca cola and that these words had been trade-marked in 1887, in 1893, and again in 1895, and that the words had been continuously used in connection with a food product, would you [illegible] that that part of the word "coca" as expressed in the connection I have put to you is identical with the coca leaves?

A. I would not regard it that way; I would regard coca cola as a distinctive name for a specific compound.

Mr. Miller: Now, we object to that.

The Court: I sustain that objection.

Mr. Sizer: (Reading.)

"Q. Do you supply the so-called Merchandise No. 5 to any company other than the Coca-Cola Company?

A. I do not sir, and never did.

Q. And all of the Merchandise No. 5 is supplied through the Roessler & Hasslacher Chemical Company?

A. Yes, sir.

Q. Doctor, if different samples of caffeine were extracted from the coffee bean and from the tea dust or from the tea leaves, and if these samples were to be put before scientific experts could they tell the difference?

A. No.

Q. Could they tell from where it was derived?

A. No.

Q. Doctor, do you know any work that has been published whereby the valuable qualities of the coca extract have been disseminated by collective investigation among several hundred physicians?

A. Yes, there is a History of Coca by Dr. W. Golden Mortimer.

Q. Doctor, in your opinion is this valuable constituent entirely due to the cocaine contents of the coca leaf?

A. I didn't understand you. Please repeat the question.

Q. Well, you said there was the coca extract, you then said that the coca extract had valuable qualities that had been disseminated. Now, are those valuable qualities entirely due to the cocaine contents of the coca leaf?

A. To reply to that question I would say that the extract of coca leaf has a different effect of action as a solution of cocaine; the same with almost every drug containing physiological active bodies — the principal active body

in its chemically pure state show different effects compared with extract made from the same drug. There are, for instance more than twenty different extracts prepared from cinchona bark, the same have different effects of physiological action. They differ in various respects regarding physiological effect from the principal alkaloid contained in cinchona drug, namely quinine. The difference of the aforesaid mentioned extracts is to be attributed to the different methods used to produce said extracts.

Mr. Miller: I object to that because no qualification is shown of Doctor Schaeffer as a physiologist at all. He was put on only as a mnufacturer.

Mr. Sizer: I do not think that is material and I do not object to your Honor excluding it.

The Court: It is excluded by consent, then.

Mr. Sizer: (Reading:)

"Q. Doctor, from what institution of learning are you a graduate?

A. I graduated in the University of Freiburg in Baden.

Q. What degree did you receive-

A. Doctor of Philosophy.

Q. How long have you been connected or associated with different industries that pertained to manufacturing chemists?

A. I was for sixteen years Director of the firm of C. F. Boehringer & Son in Mannhein, Germany, one of the leading firms in the manufacture of chemicals in Europe. I later on established my own works in the United States at Maywood, New Jersey. I manufacture a number of fine chemicals at my works.

Q. In your experience, and in your work, Doctor, have you or have you not made close study of the properties of the coca leaves and kola nuts?

A. I have.

Q. And the extraction of different alkaloids therefrom?

A. I have.

Q. Doctor, in the manufacture of the product which is known as coca cola and which is a food product, would you or would you not say or rather consider Merchandise No. 5 an essential ingredient thereof?"

Mr. Miller: I object to that because it depends on the quantity with which it is mixed, and that is not shown.

The Court: I sustain that objection; that is not a matter for an expert.

Mr. Sizer: (Reading:)

"A. I do.

Q. Is it essential in giving coca cola syrup its peculiar flavor?

A. It gives it a specific flavor.

RE-EXAMINATION,
BY MR. MILLER:

Q. You have stated, as I understood you, that different methods are employed in producing extracts from a particular growth, such as the coca leaf or the kola nut, and did I correctly understand you to say that the different properties that resulted containing these extracts —

A. (Interrupting.) Products, I said.

Q. I will say properties for the present, — that resulted or contained these extracts were due to the different methods employed?

A. Yes.

Q. How many different methods are employed in the manufacture of cocaine to your knowledge?

A. It is very hard to say — I speak for myself — I change processes dozens of times which I use, and I am still investigating to make new changes with a view to getting a better yield of an alkaloid like cocaine which is of an exceedingly delicate nature. Also, other manufacturers of cocaine have processes for the manufacture of the same article, and the same are the business secrets of the individual manufacturers.

Q. The object sought, and the principal one from your point of view and that of other manufacturers, is to obtain the highest yield of cocaine at the least expense?

A. And the purest possible preparation.

Q. The cocaine is the principal commercial ingredient or the valuable one in the coca leaf is it?

A. Yes, sir.

Q. And there are two distinct varieties or growths of the coca leaf?

A. There are several varieties.

Q. But there are two principal ones are there not?

A. I would say two principal ones, but there are varieties other than the principal ones. In general you are right, there are two principal varieties.

Q. From a commercial standpoint there are two?

A. I would say yes.

Q. And which of the two, if you confine your manufacture to either, do you employ in the manufacture of the product or Merchandise No. 5?

A. Chiefly the so-called Truxillo Coca.

Q. Can you give us substantially or approximately the analysis or contents of Merchandise No. 5?

A. Merchandise No. 5 contains a number of organic bodies —

Mr. Hirsch: (Interrupting.) Whether Doctor Schaeffer is going to give it to you or not, I want to say that the law does not require the giving out of a formula or of that particular formula — it is a trade secret of the Coca-Cola Company.

The Witness: I want to reply to him in a general way.

Mr. Hirsch: All right.

The Witness: Merchandise No. 5 contains a number of organic substances. I would not be able to give you even the names of the bodies in that extract. There are in extracts of this kind a number of substances which have not even been identified so far; it is impossible for me to say how many substances there are in an extract of this kind.

BY MR. MILLER:

Q. Do you know some of them that are in it, and can you give the names of those that you do know?

A. Well, I could give you the names of some, that is tannic acid is in the extract.

Q. Tannic acid?

A. There are several tannic acids.

Q. And what else do you know that is in Merchandise No. 5 that is prepared at your factory besides the tannic acid?

A. I never have made any attempt to isolate any of the other so-called extractive bodies and substances which have not been identified as yet. The question being of no commercial value I never was tempted to waste time on it.

Q. So far as you know then in the process of treatment that the coca leaf and the kola nut undergo at your plant, none of the properties are extracted or taken away except the cocaine, the remainder are presumably contained in Merchandise No. 5?

A. Exactly.

Q. I understood you to say on cross-examination that there were a number of plants from which caffeine was obtained, or which yielded caffeine. Will you please enumerate that number?

A. I will give you the principal plants carrying caffeine, these: tea, coffee, matte — this is the Paraguay variety growing in South America, cocoa, kola nut, guarana —I think that will do for the present.

Q. What is guarana?

A. Guarana is a concentrated milk.

Q. How is it made?

A. It is, as I understand, made from a milk flowing out from a tree in the interior of South America and concentrated to a paste.

Q. Now, you have enumerated all of the plants?

A. Not all; all I remember of them.

Q. The growths that you have mentioned are the ones in which caffeine is found so far as you know?

A. Yes, these are the principal ones; caffeine is present in a number of plants outside of the ones I have mentioned.

Q. Well, any of the others now?

A. Why, I would have to consult a text book for them there are other plants having no commercial value, you know, and which is more scientific than practical; plants that are of no use commercially and that are not employed.

Q. That are not employed?

A. They are commercially not employed.

Q. Did I understand you to state that you made your contract for the production and furnishing of this Merchandise No. 5 with the Coca-Cola Company?

A. Through The Roessler & Hasslacher Chemical Company.

Q. But is it or not a fact that this chemical company is merely employed as a convenience for distributing the product?

A. Exactly.

Q. Then the contract is directly with the Coca-Cola Company?

A. It is the Roessler & Hasslacher Chemical Company that writes the contract out, because they are the sole agents for that article for Schaeffer Alkaloid Works.

Q. Do you employ that chemical company merely as a convenience and you manufacture this product expressly for the Coca-Cola Company?

A. Exactly.

Q. Cocaine is produced by a great many manufacturers?

A. By a limited number of manufacturers.

AND FURTHER THIS DEPONENT SAITH NOT.

W. L. Schaeffer.

Subscribed and sworn to before
me on this 9th day of
November, 1910.

ANITA HOWELL,
Notary Public,
New York.

(Seal.)"

Mr. Miller: Now, we renew our request that the jury be instructed that what this witness says about coca leaves and kola nuts be excluded because there is nothing brought out in his cross-examination which shows the relative quantities.

Mr. Sizer: Now, this is the situation: The Government took this deposition of Doctor Schaeffer and they asked him questions whether or not he makes this Merchandise No. 5 from coca leaves and kola nuts and he says he does, and he says that Merchandise No. 5 is simply an extract from those two substances. Now, when they get to the question of the proportion of coca leaves and kola nuts that he uses, and about which they are inquiring, he declines to answer, and I submit that that question cannot deprive us of the right to read the deposition which they themselves took to show, that as a matter of fact he does say those two substances and nothing else are used in producing this particular Merchandise No. 5. We do not undertake to say what proportion of coca leaves and kola nuts are used.

The Court: That is just what I rule you have to show to make it competent. So, gentlemen of the jury, on the motion of the defendant all of the statements and the testimony of this witness to the effect that coca leaves and kola nuts are used in the production of Merchandise No. 5 is ruled out until such time as there may be evidence from this witness showing the amount of each used so that the Court and jury may determine whether they are appreciable quantities as they enter into this product of Merchandise No. 5.

Mr. Sizer: Your Honor will further note that Mr. Miller on re-examination asked: "So far as you know, then, in the process of treatment that the coca leaf and the kola nut undergo at your plant, none of the properties are extracted or taken away except the cocaine, the remainder are presumably contained in Merchandise No. 5," and the witness says: "Exactly."

The Court: I noted that when you were reading it, but where a witness is being examined and the Court is not present to compel the witness to answer questions and he declines to answer important matters, his deposition will not be admitted.

Mr. Miller: It is not fair for them to insist that Mr. Miller ask this and that; they adopted the witness.

The Court: There is no question of unfairness here —

Mr. Miller: But he keeps referring to the fact that I asked the question.

The Court: Well, that is a fact.

Mr. Miller: But he adopted it.

Mr. Sizer: If your Honor please —

The Court: Never mind; go on.

JAMES GASTON (Col'd.),

the next witness called on behalf of the Claimant and In-

tervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Where do you live?
A. 708 Young street, Atlanta, Ga.
Q. For whom do you work?
A. Mr. Asa G. Candler.
Q. Is that in the Coca-Cola factory?
A. Yes, sir.
Q. How long have you been working there?
A. I have been working there twelve years as near as I can recollect.
Q. What do you do?
A. Cook the Coca-Cola syrup.
Q. You dump the sugar into the kettle?
A. Yes, sir.
Q. Are you what they call the cook?
A. Yes, sir.
Q. How long have you been cook?
A. I have been cook five years.
Q. Do you chew tobacco?
A. No, sir.
Q. Did you ever chew?
A. No, sir.
Q. What kind of clothes do you wear when you are in the factory?
A. Overalls and jumper and shoes.
Q. What kind of shoes, — heavy shoes?
A. Heavy shoes with good bottoms and tops to them.
Q. Do you wear those shoes you have on in the factory, out on the street?
A. No, sir.
Q. Did you ever work around that kettle in your undershirt without any jacket on?
A. No, sir.
Q. Did you ever wear a pair of shoes around the kettle that your toes were sticking out the front of?
A. No, sir. I could not do that, it would be dangerous that stuff splashing out and scalding my feet.
Q. If you splashed any sugar on the platform, what would it do?
A. If we scattered any on the platform we took a shovel and shoveled it in, but we hardly ever scattered any. We dumped the edge of the barrel over on the kettle and none falls on the platform.
Q. Does any fall on the floor?

A. No, sir; only splashes.

Q. Do you ever go down on the floor and sweep up anything and then put it in the kettle?

A. No, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. When did you get into Chattanooga?

A. Last night.

Q. Where are you stopping?

A. 634 — I don't know the name of the street now.

Q. Do you know the name of the man you are stopping with?

A. I stop with a lady.

Q. What is her name?

A. She is a widow lady, she has no husband.

Q. Well, what is her name?

A. I can't remember her name now.

Q. Can't remember the name of the woman where you are stopping and can't remember of the number of the street?

A. I know the number of the house but not of the street.

Q. Which part of town?

A. East side.

Q. How did you happen to go over to that place? Where you didn't know the name of the street or the name of the woman?

A. I was recommended there by the bell boy.

Q. At the Patten hotel?

A. Yes, sir.

Q. Did he tell you the name of the street to go to?

A. Yes, sir, but I have forgotten.

Q. You don't mean you never chewed tobacco in your life?

A. Sure.

Q. You never chewed?

A. No, sir.

Q. Do you smoke?

A. I smoke cigars but not on the job.

Q. What kind of stockings or sox do you wear on the job?

A. I wear ten cents stockings, clean.

Q. Do you change those when you go there in the morning?

A. Yes, sir.

Q. Where do you change them?

A. I change them on the job.

Q. On the job?

A. Yes, sir.

Q. You mean you change them up on the platform?

A. No, sir; I don't put on my shoes there; I have a place downstairs to change.

Q. Where is that?

A. In the basement.

Q. Whereabouts in the basement?

A. It is near the boiler room.

Q. Is that the basement where the mixing of the Coca-Cola syrup is made up?

A. No, sir; it is away around beyond that.

Q. It is on that same floor?

A. Yes, sir; but not down where it is mixed up.

Q. Is it in that same room?

A. No, sir.

Q. How many rooms are downstairs?

A. Two rooms.

Q. One of them is the boiler room?

A. Yes, sir.

Q. You go in the boiler room?

A. Yes, sir.

Q. Where do you keep your clothes that you take off when you go out there — where do you put them?

A. I leave them down near the boiler room.

Q. Then you leave your change of clothing from time to time in the boiler room?

A. Yes, sir.

Q. Then you go down and put them back on when you are through?

A. Yes, sir.

Q. The same way with your socks?

A. Yes, sir.

Q. You go there and get them and put them on?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Do you remember when the Government inspectors came down there to look over the building?

A. Yes, sir; I can recollect one time when they came down there.

Q. You were cooking there at that time?

A. Yes, sir.

Q. These questions I have been asking you about what you did — that was the condition in October, 1909, was it?

Mr. Miller: I object to that question.

Mr. Sizer: I omitted to ask whether there had been any change since October, 1909.

BY MR. SIZER:

Q. Were you the cook in 1909, a year ago last October?

A. Yes, sir.

The Court: You mean was he conducting the dressing and so forth differently at that time — you can ask him that.

BY MR. SIZER:

Q. Were you at that time dressing and conducting yourself as you have heretofore stated in this testimony?

A. Yes, sir.

RECROSS-EXAMINATION,

BY MR. MILLER:

(This examination was by consent of counsel after adjournment of Court, agreed to be incorporated as a part of the testimony of this witness as if given in open court.)

Q. Have you yet learned or found out who you are stopping with?

A. Her name is Mrs. Boyer.

Q. Boyd or Boyer?

A. Boyd.

Q. Boyd? (Spelling) B-o-y-d?

A. Yes, sir.

Q. What street does she live on?

A. East Ninth street, or East — I can't remember I had it in my grip when I started up here.

Q. You don't remember what it is?

A. No, sir; I don't remember the street. The bell boy can tell you down at the hotel, because he stops right across the street from me.

Q. Do you know what the bell boy's name is?

A. He is the head bell boy. I don't know what his name is.

Q. Who was it advised you to come up to Chattanooga?

A. Mr. Dobbs said for me to come.

Q. Had you any talk with him, with Mr. Dobbs about what you should testify to in the case?

A. No, sir.

Q. He didn't tell you what to come for?

A. No, sir.

Q. When you came did you have any talk as to what you came for?

A. No, sir.

Q. When you came, what occured next?

A. What occured next—how?

Q. After you came here did you have any talk with any body?

A. No, sir; the bell boy simply told me how at the Hotel Patten.

Q. The bell boy simply met you at the Hotel Patten and told you where to go to?

A. Yes, sir; I had to go to Mr. Mitchell there.

Q. You talked to Mr. Mitchell about what your testimony would be in the case?

A. No, sir.

Q. Did you talk to anybody else about what your testimony would be in the case?

A. I really don't know, you know.

Q. You didn't know anything about it until you were called on the stand this morning?

A. I knew I had to come but didn't know what I had to testify for.

Q. You didn't know what you were going to testify about at all?

A. No, sir.

Q. You didn't know what you were going to be asked about?

A. No, sir; nothing more than the cooking of the syrup.

Q. And you were not asked about it until you came on the stand?

A. No, sir.

Q. Did anybody talk to you about having cooked the syrup?

A. No, sir.

Q. What were you going to testify on that point?

A. Nobody talked to me, about the cooking.

Q. Did anybody talk to you about what you were going to testify?

A. No, sir.

Q. In reference to the cooking of the syrup or anything else?

A. No, sir.

Q. What number—do you remember where you live in Atlanta?

A. 78 Young street.

Q. How long have you lived there?

A. I have been living there going on four years.

Q. Did you say you came up Monday night?

A. No, sir; last night.

Q. Tuesday night?

Q. Yes sir.

Mr. Miller: You may examine him, Mr. Hirsch.

Mr. Hirsch: That is all.

(Witness excused.)

(Continuation of Morning Session.)

Mr. Hirsch: Shall we go on? We have a number of scientific witnesses and it is ten minutes to two now.

The Court: You might examine them on the preliminary matters.

DR. JOHN WILLIAM MALLET,

the next witness called on behalf of the claimant and Intervenor, The Coca-Cola Company, of lawful age, first being duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. What is your name and occupation?

A. John William Mallet; I am a chemist.

Q. How long have you been so engaged?

A. All of my adult life, since 1855.

Q. What particular opportunity have you had for studying this line of work?

A. I have been professor of chemistry in several institutions and been teacher of chemistry, and also engaged in investigations for commercial and other purposes, practically through that whole period, with the exception of four years of the Civil War.

Q. What experience have you had along the line of analytical work?

A. My last answer I think covers that. I have been engaged in analytical work during that time.

Q. Where did you receive your education?

A. At the universities of Dublin and Gottingen.

Q. What institutions of learning are you now connected with or have you been connected with, and in what capacity?

A. I have been professor of chemistry in the state universities of Alabama and Texas, and the Medical college of Alabama at Mobile, the Medical Department of the State University of Louisiana at New Orleans which has since become Tulane University; the Jefferson Medical College of Philadelphia, and the greater part of the time the University of Virginia.

Q. Are you now connected with the University of Virginia?

A. I have ceased to actually teach but I remain a member of the faculty, so-called, Professor Emeritus, for the last two years.

Q. What scientific degrees do you hold and from what institutions?

A. Dr. of Philosophy from the State University of Gottingen, Dr. of Medicine from the State University of

Louisiana, New Orleans Medical School; and the Degree of Law from Princeton University, the John Hopkins University, the University of Pennsylvania and one or two others.

Q. Have you had any experience in the examination of food products, and if so, what?

A. I have been frequently called upon to examine food products, particularly for commercial purposes, and particularly with a view of preparation for my lectures in Industrial Chemistry, and particularly in connection with some of the international exhibitions. I made two of the reports, one more particularly referring to food, at the Philadelphia Exhibition in 1876.

Q. Have you ever held any official position in this country or abroad in connection with your work, and if so what?

A. I do not know exactly to what you refer.

Q. Have you ever been on any commission for the examination of food or any commission referring to analytical work, either in this country or abroad?

A. I have served three times on the Assay Commission at the mint at Philadelphia. I have been one of the judges at the Philadelphia Exposition that I referred to just now. I have been called upon to examine the water supplies of several cities, — Philadelphia, Norfolk and Richmond.

Q. I will ask you if you are a member of any scientific societies, here or abroad, and if so, what?

A. I am a Fellow of the Royal Society of London, a Fellow of the Chemical Society of London, at one time vice-president. I am a member of the Chemical Society of this country, at one time president of it, corresponding member of the American Academy of Science, Boston; corresponding member of the Chemical Society of New York; member of the American-Philadelphia Society of Philadelphia; member of the State Medical Society of Virginia; honorary member of the American Medical Chiurgical Society; and some others.

Mr. Hirsch: Now I have finished that part, shall I go on?

The Court: If you have any preliminary questions that you could ask him, you can go on, but that is within your judgement.

BY MR. HIRSCH:

Q. Have you received any samples purporting to be Coca-Cola syrup?

A. Yes, sir.

Q. From whom did they come?

A. Do you refer to Coca-Cola syrup as sold?

Q. Yes.

A. I have received several samples at different times but actually analyzed three samples. Two of them were sent to me from the factory at Atlanta, shipped by express, by Mr. Johnson and purporting to be a part of the barrels and kegs seized.

Q. Was that from Atlanta or Chattanooga?

A. I received them from Chattanooga, I beg pardon; I believe I did say Atlanta. I myself bought in the open market at Charlottesville a third sample, buying it from a local drug store.

Q. Did you receive any other sample?

A. I received afterwards two samples which were not submitted to an analysis, but at a subsequent date shipped from Atlanta.

Q. Now, taking up the first of the samples that you mentioned, did you make an analysis of those samples?

A. I did.

Q. What was the result of your analysis?

The Court: It is just two minutes of adjournment and this is a good place to interrupt.

Whereupon an adjournment was taken until Thursday morning, March 23, 1911, at 9 o'clock A. M.

EXHIBIT NO. 1 TESTIMONY OF HOWARD CANDLER.

UNITED STATES OF AMERICA.
Department of the Interior.
Patent Office.

To all persons to whom these presents shall come, GREETING: THIS IS TO CERTIFY that the annexed is a true copy from the records of this office of Paper Exhibits A, B, C, D, E, F, G, H and I, filed August 15, 1892, and Decision of the Examiner of Interferences, December 15, 1892, in the matter of Interference Number 15,753. The Coca-Cola Company vs. Kent.

SUBJECT-MATTER:
Trade-mark for Tonic.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington this 25th day of November, in the year of our Lord one thousand nine hundred and five and of the Independence of the United States of America the one hundred and thirtieth.

F. I. ALLEN,

(SEAL)

Commissioner of Patents.
U. S. Patent Office
August 15, 1892.

Ex. A.

DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.

To all persons to whom these Presents shall come
GREETING:

This is to certify that the annexed is a true copy from the Records of this Office of the Lable Registered by
John S. Pemberton.
June 28, 1887, Number 5,272,
of which the following is the title:
"Coca-Cola Syrup and Extract".

In testimony whereof I, W. E. Simonds, Commissioner of Patents, have caused the Seal of the Patent Office to be affixed this 2nd day of April in the year of our Lord one thousand eight hundred and ninety-two and of the Independence of the United States the one hundred and sixteenth.

W. E. SIMONDS,
Commissioner.

No. 5,272.

UNITED STATES OF AMERICA,

PATENT OFFICE,

To-wit: BE IT REMEMBERED, That on the Sixth day of June, Anno Domini, 1887, John S. Pemberton, of Atlanta, Georgia, deposited in this Office for registration a Label, of which the following is the title:

"Coca-Cola Syrup and Extract".

the right whereof he claimes as sole proprietor, in conformity with the law of the United States entitled "An Act to amend the law relating to Patents, Trade-Marks and Copyrights" approved June 18, 1874.

In Testimony whereof I have caused the seal of the Commissioner of Patents to be hereunto affixed this twenty-eighth day of June, 1887, and of the Independence of the United States the one hundred and eleventh given under my hand, at Washington, D. C.

The foregoing is a copy of the record, and attached hereto is a copy of said Label.

(Seal) BENTON J. HALL,
Commissioner of Patents.

Ex. B.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE

To all persons to whom these Presents shall come,

GREETING:

This is to certify that the annexed is a true copy from the records of this Office of an Instrument of writing executed by John S. Pemberton, W. E. Venable and George S. Lowndes, July 8, 1887 and recorded in Liber K—36 page 384.

Said record has been carefully compared with the original, and is a correct transcript of the whole thereof.

In testimony whereof, I, Benton J. Hall, Commissioner of patents, have caused the Seal of the Patent office to be affixed this 3rd day of May, in the year of our Lord one thousand eight hundred and eighty-eight, and of the Independence of the United States the one hundred and twelfth.

BENTON J. HALL,
Commissioner.

Liber K 36
P. 384

Whereas John S. Pemberton of the City of Atlanta in the County of Fulton, and State of Georgia, is the owner of a formula for Coca-Cola Syrup and Extract, and did, on the 28th day of June, 1887, register in the United States Patent Office a Label, under the title of Coca-Cola Syrup and Extract, Number 5272, and,

Whereas, Willis E. Venable and George S. Lowndes, both of the same place, are desirous of acquiring an interest in said formula and registration:

Now, therefore, This Indenture Witnesseth, that for and in consideration of the sum of one dollar to be in hand paid, the receipt of which is hereby acknowledged, as well as in consideration of an advance loan of $1200.00 without interest, but which is to be refunded to said Lowndes and Venable out of my share of profit in the hereinafter mentioned business; and in further consideration of the said Lowndes and Venable furnishing the necessary capital to conduct said business without charging interest therefor:

I, the said John S. Pemberton, do hereby sell and assign a two-thirds interest in and to said registered label to the said Willis E. Venable and George S. Lowndes, and the sole right to manufacture, sell and control the business and use the said label for the benefit of the parties concerned, for and during the full term of said registration, or any renewal thereof, and further agree to furnish said Venable and Lowndes all knowledge and information necessary for the manufacture of the said Coca-Cola syrup and Extract.

And it is agreed by and between the parties hereto, that

said Lowndes and Venable shall alone conduct the business of manufacturing and selling said Coca-Cola Syrup and Extract during the term of registration of said label. It is further agreed that said Pemberton shall receive one- and fixture said Pemberton has on hand that can be used in the manufacture of Coca-Cola Syrup and Extract for the benefit of said business paying the said Pemberton therefor original cost.

It is further agreed that said Pemberton shall receive one-third the net profits arising from said business, and that he shall have the privilege of drawing the same monthly.

This July 8, 1887. Signed in duplicate

Witness John S. Pemberton.

Ed. Holland. W. E. Venable.

Recorded July 14th, 1887. George S. Lowndes.

B. A. J.

N. F.

Received for record June 5, 1891, and recorded in Liber H 43, page 309, of Transfer of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

Patent Office C. E. Mitchell,

United States Exd. A. J. J. Commissioner of Patents of America.

Georgia, }
Fulton County, }

This agreement witnesseth that whereas John S. Pemberton, of one part, and W. E. Venable and George S. Lowndes of the other part, on the 8th of July 1887, by an instrument duly recorded in the office of the Commissioner of Patents, Washington, D. C., on the 14th of July 1887, in Book K. 36, page 384 of transfers of patents, made a contract whereby said Venable and Lowndes acquired a two-thirds interest in the registered label of "Coca-Cola Syrup and Extract", and certain relations were established between said parties:

And whereas said written contract has been modified by said parties, so as to make the twelve hundred dollars advanced by Venable and Lowndes, payable out of the general profits of the business, and after the same shall have been paid then the said Pemberton to draw his portion of profit monthly, and whereas said Pemberton on the 13th of December, 1887, gave his written consent that said Venable and Lowndes might sell and transfer their interest in said contract as modified and subrogate the purchasers to their rights thereunder; and whereas Mrs. M. C. Dozier and W. Walker are desirous of purchasing the interest of said Venable and Lowndes in said contract (one

third thereof by Mrs. Dozier and the remainder by Walker.) Now in consideration of the sum of twelve hundred dollars to said Venable and Lowndes by said Mrs. Dozier and Walker in hand paid, the said Venable and Lowndes do hereby transfer, assign and set over to said Mrs. Dozier and Walker, all their interest in said contract, except the material and fixtures, and subrogate them to all their rights under said contract as modified.

And they further agree to sell their interest in said material and fixtures on the basis named in said contract.

The said Mrs. Dozier and Walker assume the obligations of Venable and Lowndes under said contract and agree to take and pay for said material and fixtures on the basis named. This agreement is executed in triplicate, so that J. S. Pemberton may have one copy, Venable and Lowndes one, and Mrs. Dozier and Walker one, this December 14, 1887.

W. E. VENABLE.
GEO. S. LOWNDES.
WOOLFOLK WALKER.
MRS. M. C. DOZIER.

Witness:
A. F. HOWELL.

RECEIVED for record June 5, 1891, and recorded in Liber H 43, page 311, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

Patent Office, United States of America.

Exd. A. J. J.

Georgia }
Fulton Co. }

Whereas, we, Woolfolk Walker and Mrs. M. C. Dozier, of said State and county, are the owners of two-thirds interest in and to a formula for Coca Cola Syrup and Extract, and also a label under the name of and title of Coca Cola Syrup and Extract, which label under said name was on the 28th day of June, 1887, duly registered in the United States patent office, being No. 5272, by Dr. J. S. Pemberton — we having bought said two-thirds interest from W. E. Venable and G. S. Lownds, they having bought from said J. S. Pemberton, now for and in consideration of the sum of seven hundred and fifty——dollars to us in hand paid the receipt whereof is hereby acknowledged we hereby grant, bargain, sell and convey unto Asa G. Candler — his heirs and assigns one-half interest in and to the two-thirds interest which we now possess obtained by us as aforesaid

said registered label and formula for Coca Cola Syrup Extract. This instrument conveys one-half the entire erest which we have (two-thirds) in said label and for-la our interests being taken as a whole — so as to give he said Asa G. Candler one-third of the entire property aid label and formula.

n witness whereof the said Mrs. M. C. Dozier and Wool- Walker have hereto set their hands and seals this the n day of April, 1888.

WOOLFOLK WALKER (L. S.)
MRS. M. C. DOZIER (L. S.)

n presence of:
(Witness) F. M. ROBINSON.

ECEIVED for record June 5, 1891, and recorded in er H 43, page 311, of Transfers of Patents.

N TESTIMONY WHEREOF I have caused the seal of Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

xd. A. J. J.

atent Office, United States of America.

EX. E.

rgia }
ton Co. }

his instrument witnesseth that whereas Mrs. M. C. ier and W. Walker are the owners of a two-third inter-in and to the registered label of "Coca-Cola Syrup and ract", having acquired the same by purchase from W. Venable and George S. Lowndes on December the 14th, 7, (the said Mrs. M. C. Dozier owning one-third and the W. Walker owning two-thirds of said interest) the tract by which the said W. E. Venable and George S. ndes became owners of said two-thirds interest, having n made with John S. Pemberton on the 8th day of July, 7, and recorded in the office of the Commissioner of ents, Washington, D. C., on the 14th day of July, 1887, Book K, 36, Page 384 of Transfers of Patents.

Now, for and in consideration of the sum of one thousand ars ($1000.00) we hereby sell, transfer, assign and set r to Asa G. Candler all our right, title and interest in to said registered label "Coca-Cola Syrup and Ex-t", together with all of our interest in stock on hand, ounts, kettles for manufacturing said syrup, and any all property or right in any property connected there-h. The said Asa G. Candler having this day given his notes each for the sum of two hundred dollars 00.00) due respectively December 15, 1888, February 1889, March 15, 1889, April 15, 1889, and May 15, 1899,

bearing interest from date at 8 per cent. per annum.

In witness whereof we have hereunto set our hands and seals this August the 29th, 1888.

MRS. M. C. DOZIER (L. S.)
WOOLFOLK WALKER (L. S.)

(Witnesses):
A. J. COOPER.
S. H. LANDRUM, J. P.

EX. F.

Received for record, June 5, 1891, and recorded in Liber H 43, page 310, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

Exd. A. J. J.

Patent Office, United States of America.

Georgia, }
Fulton County. }

Know all men by these presents that we, J. S. Pemberton and C. Pemberton, of said State and County, have this day sold to Walker, Candler & Co., composed of Woolfolk Walker, A. G. Candler and Joseph Jacobs — all our right, title and interest in and to the patented syrup known as the Coca Cola — with all the appurtenances and rights thereto belonging — for the sum of five hundred and fifty dollars, fifty to be paid this day — and balance in City Acceptance at 30 days. This April 14th, 1888.

J. S. PEMBERTON.
C. N. PEMBERTON.

(Witness:) NORMAN SHARP.

EX. G.

RECEIVED for record June 5, 1891, and recorded in Liber H 43, page 313, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

C. E. MITCHELL,
Commissioner of Patents.

Exd. A. J. J.

Patent Office, United States of America.

Atlanta, Ga., April 22-91.—189.

Georgia, }
Fulton County. }

This indenture made and entered into this the 22nd day of April, 1891, between "Walker, Candler & Co.," of the first part, and Asa G. Candler, of the second part, witnesseth, That whereas the said Asa G. Candler individually paid J. S. Pemberton the sum of Five Hundred and Fifty

Dollars, the consideration of a bill of sale to an undivided one-third interest in and to all the rights and appurtenances with copyrights, etc., etc., to the patented syrup known as COCA-COLA; and whereas it was understood at the time of said payment that said interest was to be by said Walker, Candler & Co. transferred to said Asa G. Candler—now this indenture is made in accordance with terms of agreement between aforesaid parties of same date as transfer by J. S. Pemberton and C. M. Pemberton to Walker, Candler & Co., viz.: April 14th, 1888, and for the same consideration as specified in transfer of J. S. Pemberton and C. M. Pemberton to said Walker, Candler & Co. — and they the said Walker, Candler & Co., do by these presents sell, release and resign to the said Asa G. Candler all their rights, title and interest in the patented syrup known as COCA-COLA — with all the appurtenances, rights and titles thereto belonging.

In witness thereof the said Walker, Candler & Co. have hereto set their hands and affixed their seals this April 22, 1891.

WALKER, CANDLER & CO.
Per JOS. JACOBS.

(Witness:)
W. R. MORRIS.

RECEIVED for record April 23d, 1892, and recorded in Liber U, 45, page 415, of Transfers of Patents.

IN TESTIMONY WHEREOF I have caused the seal of the Patent Office to be hereunto affixed.

W. E. SIMONDS,
Commissioner of Patents.

Exd. F. C. T.

Patent Office, United States of America.

Georgia, }
Fulton County. }

Know all men by these presents, that I, Asa G. Candler, for and in consideration of five hundred (500) shares of the capital stock of the Coca-Cola Company (a corporation under the laws of said State) of the par value of One Hundred Dollars ($100) per share do hereby transfer, sell and assign to the said Coca-Cola Company, a corporation as aforesaid, all my rights, title and interest in and to the patent formula for the manufacture of the extract and syrup known as Coca-Cola, together with the rights and title to letters patent pertaining to Coca-Cola. Said formula and copyright being the same as that granted to J. S. Pemberton on the 28th day of June, 1887, and recorded in the Patent Office at Washington, D. C., in Liber K 36, page 384, designated in said record as Number 5272 — together with all the printed and advertising matter, crude and

manufactured material necessary to the proper manufacture and sale of said goods in my possession at this date; a schedule of all of said furniture, stock, advertising matter, etc., is hereunto attached and is hereby made a part of this instrument.

ASA G. CANDLER.

Signed in presence of — } G. W. LITTLE.
This February 22, 1892. } J. B. BROOKS.

E. C. C.

UNITED STATES PATENT OFFICE.

COCA-COLA CO. *v.* BEERMANN *v.* KENT.

TRADE-MARK FOR TONIC. — No. 15,753.

Application of Coca-Cola Co. filed May 14, 1892.
Application of Beermann filed Feb. 12, 1892. Reg. 20,818.
Application of Kent filed Nov. 21, 1888. Reg. 16,209.
Messrs, Lehmann, Pattison & Nesbit, Attorneys for Coca-Cola Co.
Messrs. Munn & Co., Attorneys for Beermann.
Mr. J. F. Kerr, Attorney for Kent.

This is an interference between Kent, the registrant of the trade-mark Coca-Cola; Beermann, the registrant of the trade-mark Co-Co-Colian, and the application of the Coca-Cola Co. for the registration of the trade-mark Coca-Cola.

Beermann filed his application Feb. 12, 1892, and his certificate issued March 8, 1892. In his statement he alleged continuous use since January 1, 1892. He took no testimony and as this date is long subsequent to the registration by Kent, he, Beermann, need not be further considered.

Testimony was taken both by Kent and the Coca-Cola Co. on Oct. 11, 1892, a motion was made on behalf of the Coca-Cola Co. among other things "That all testimony in behalf of Benjamin Kent tending to establish a date prior to the 1st of June, 1888, be eliminated from the record on the ground that, as the above date is the date set up by him under oath in his letters of registration, as the time at which he began a continuous use of the mark in question, he is held thereto in this interference proceeding". On Nov. 3, 1892, the examiner of interferences passed upon this part of the motion as follows: "It seems very plain to the examiner that the first branch of this motion ought not to be heard upon its merits or determined by him prior to the final hearing of the case, and he does hereby refuse to consider that branch of the motion". Under this order the above motion of the Coca-Cola Co. comes up for determination.

By the Act of March 3, 1881, Sec. 1, relating to the Reg-

istration of Trade-Marks, an applicant is required to set forth in his statement "the length of time during which the trade-mark has been used". In compliance with this requirement Kent alleged continuous use in his business since June 1, 1888. In his testimony he attempted to set up the act of adoption and use as far back as 1884 or 1885. He brings one witness who testifies to the store use of the symbol Coca-Cola in 1885 and another who testifies to the same use in January or February, 1886. The Coca-Cola Co. contend that Kent should be restricted to the date alleged in his statement as to the date of adoption and should not be permitted to set up an earlier date. This contention must be supported in view of the present practice, which views a statement, made in connection with an application for the registration of a trade-mark, in the same light as a preliminary statement in an interference proceeding between two applications for patents for an invention. Le Page Mfg. Co. v. Russia Cement Co., 40 MS. C. D. 329. And as parties are strictly held in their proofs to the dates set up in a preliminary statement (Rule 110) the same restriction has been placed upon proofs in a contest as to prior adoption and use of a trade-mark, and the parties held strictly to the dates alleged in their statements filed with the application for registration. Rule 13, Rules Relating to the Registration of Trade-Marks. Browne on Trade Marks, 2 Ed. 1885, p. 625, S. 627. Such being the practice, Kent is not allowed an earlier date than June 1, 1888, the date alleged in his statement, as the date of adoption, and it is not necessary to consider the point raised by attorney for the Coca-Cola Co. that the use by Kent of the said symbol as a "store term" and on written labels, put upon bottles sold over his counter, did not amount to adoption and use. Kent being thus restricted, it becomes necessary for the Coca-Cola Co., upon whom is the burden of proof, to overcome the "prima facie evidence of ownership" existing in the registrant Kent by virtue of Sec. 7 of the statute of March 3, 1881. The statement in the application for registration of the Coca-Cola Co. alleges continuous use since June 28, 1887. It appears from the testimony that this date is the date of the registration of a label by one J. S. Pemberton, under the name of "Coca-Cola Syrup and Extract". Asa G. Candler, the President of the Coca-Cola Co., testifies that prior to the formation of said company on Feb. 22, 1892, he had acquired through several intermediate assignments the right to the label and the use of the word Coca-Cola; and that Pemberton, and his other privies in title had adopted and used the said word to designate a beverage continuously since the spring of 1886. The only

other witness, Robinson, testifies to the adoption and use by Pemberton of the word Coca-Cola to designate a beverage in the spring of 1886 and its continuous use since, and he gives a list of sales in the spring of 1887.

It is to be noted that the Coca-Cola Co. has offended as grievously as Kent in the infringement of Rule 13, by offering testimony to show adoption and use prior to the date alleged in their application statement. But while the Coca-Cola Co. cannot avail themselves of a date earlier than June 28, 1887, the testimony shows beyond any reasonable doubt that on said date the privies in title of the said company had adopted and used the symbol Coca-Cola as a trade mark. It follows, therefore, that judgment as to prior adoption and use must be and the same is hereby rendered in favor of the Coca-Cola Co. Limit of appeal will expire January 4, 1893.

WALTER JOHNSON,
Examiner of Interferences.

December 15, 1892.

Endorsed: Intf. No. 15,753, Paper No. 18. Coca-Cola Co. v. Beermann v. Kent. Decision of priority in favor of Coca-Cola Co., Dec. 15, 92. Filed Apl. 30, 1906. C. J. Murphy, C. C. C. U. S. Dist. S. C. Recorded, Vol. 42, p. 60.

IN THE CIRCUIT COURT OF THE UNITED STATES
IN AND FOR THE WESTERN DISTRICT
OF PENNSYLVANIA.

COCA-COLA COMPANY, a Corporation of the State of Georgia, and the COCA-COLA BOTTLING WORKS, of Pittsburg, a Corporation of the State of Tennessee,

vs.

E. S. FRISHKORN, a citizen of the State of Pennsylvania.

No. 31,
Nov. Term, 1906.
In Equity.

DECREE PRO CONFESSO.

This case having been brought on for hearing, and it appearing that defendant was duly served with process on the 11th day of November, 1906; that the defendant having failed to appear and having failed to plead, answer or demur, an order for a decree pro confesso was duly entered on the 6th day of January, 1907; that more than thirty days have passed since the entry of said order; the court thereupon adjudges and decrees that complainant herein, Coca-Cola Company is the owner and proprietor of a good and valid trade mark for beverages, consisting of the term

or designation "Coca-Cola"; and that the Coca-Cola Bottling Works, of Pittsburgh, complainant herein, is licensee from the said Coca-Cola Company for the territory surrounding and including the City of Pittsburgh, Pa., respecting such trade-mark rights; and that the parties complainant herein have an established business in preparing and dispensing beverages; and that the appearance of their product when put upon the market is characteristic, and as such recognized by the trade as the product of these complainants; and that the defendant herein, in dealing in a bottled drink under the name or designation "Toca-Coca" is infringing upon the aforesaid trade-mark rights of these complainants, and in putting such product on the market in the form exemplified by the exhibits in this case, is engaged in unlawful competition.

It is further ordered, adjudged and decreed that the defendant, said E. S. Fishkorn, his agents, servants and workmen be, and hereby are, enjoined from further infringing complainants' trade-mark, and from dealing in bottled beverages which in appearance so nearly resemble complainants' product so as to cause confusion in the trade; and specifically from bottling, selling or dispensing a beverage under the name "Toca-Coca", or in the form exemplified in the Exhibits herein.

Per CURIAM.

Feby. 13, 1907.

United States of America,
Western District of Pennsylvania.

I, H. D. GAMBLE, Clerk of the Circuit Court of the United States, for the Western District of Pennsylvania, in the Third Circuit, do hereby certify the foregoing to be a true copy of the original Decree, Pro Confesso, filed February 13, 1907, in suit of Coca-Cola Company and Coca-Cola Bottling Works of Pittsburgh, Pa., complainants, versus E. S. Frishkorn, respondent, at No. 31 of Nov. Term, 1906, in equity, on file, and now remaining among the records of the said court, in said Clerk's office.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the seal of the said Court, at Pittsburgh, in said District, this 25th day of March, in the year of our Lord one thousand nine hundred and ten, and of the independence of the United States the one hundred and thirty-fourth.

H. D. GAMBLE,
Clerk U. S. Circuit Court.

(SEAL)

IN THE CIRCUIT COURT OF THE UNITED STATES,
NORTHERN DISTRICT OF ILLINOIS,
EASTERN DIVISION.

FRIDAY, OCTOBER 9TH, 1908.

Present: HONORABLE WILLIAM H. SEAMAN, Circuit Judge.

COCA-COLA COMPANY, a Corporation,
vs.
MAX JACOBS and HARRY RACUSIN and IKE MICHELSON, trading as the Western Bottling Works. } 29196.

This cause coming on to be heard it is, by consent of the parties, hereby adjudged, ordered and decreed as follows:

FIRST. That Coca-Cola Company, the complainant herein, is the sole and exclusive owner of a secret process for the manufacture of a certain beverage which ever since complainant's incorporation and for a long time previously by its predecessor, has been and is termed and known by the trade name of "Coca-Cola"; that said beverage has been generally and exclusively sold throughout the United States, including the State of Illinois, by its said trade name of "Coca-Cola" and has been extensively and exclusively advertised by such name, whereby said beverage has come to be known to the public by its said trade name of "Coca-Cola"; that by virtue of its character and its long continued and exclusive use by the complainant and its predecessor in business, the said name "Coca-Cola" has come to signify in the trade that the beverage bearing said name is the product of the complainant; that the complainant and its predecessor by the adoption of and long use of the word "Coca-Cola" to designate the said beverage manufactured and sold by it and the registration of the said fanciful compounded word "Coca-Cola" in the United States Patent Office, as a trade mark to designate its goods on Jan. 31, 1893, certificate No. 22, 406, and the re-registration in the United States Patent Office of the same compounded word on Oct. 31, 1905, certificate No. 47,189, became the sole and exclusive owner of the use of said compounded words "Coca-Cola" as a trade mark to designate the said beverage manufactured and sold by it and for a long time known to the trade by the trade name "Coca-Cola".

That the defendants, Harry Racusin and Ike Michelson, trading as the Western Bottling Works, have heretofore marketed a beverage under the name "Kos-Kola" of the same general color and appearance as complainant's "Coca-Cola", placing the same in bottles of the same general size and form and sealed with a metal cap, all closely resembling in appearance the bottles and the bottled bev-

erage "Coca-Cola", as placed upon the market by the authorized bottlers of the complainant; that the defendant Max Jacobs, through his employes, has sold said so-called "Kos-Kola" in various theatres and other places in Chicago where he has a concession, for sale of articles of this kind, both in bottles and in glasses; that in offering said spurious beverage, "Kos-Kola" for sale in the bottles and in glasses as aforesaid, the vendors, the employes of said Max Jacobs, call out and announce the sale of "Coca-Cola" and other like terms, so closely resembling in sound the words "Coca-Cola", as to lead purchasers to believe they are purchasing the complainant's said beverage "Coca-Cola".

It is therefore further adjudged and decreed, that the defendants, Max Jacobs and also Harry Racusin and Ike Michelson, trading as the Western Bottling Works, they and each of them and each of their agents, attorneys, workmen, employes and representatives are hereby enjoined from directly or indirectly manufacturing, bottling or selling or offering for sale, proclaiming or announcing for sale any beverage whether bottled or in the glass as "Coca-Cola", "Kos-Kola", "Cold-Cola", or by any other name, term or expression so similar in sound or in appearance as to lead purchasers to believe that they are purchasing the beverage known as "Coca-Cola", manufactured by and the product of the complainant herein or from in any manner infringing upon the trade name or the trade rights of the complainant, and diverting or seeking to divert to them or either of them, sales that would otherwise come to the complainant and its representatives or aid said defendants or either of them in consummating sales by inducing purchasers to believe that they are purchasing the complainant's goods.

The complainant having admitted in open court that the defendants have made full settlement and satisfaction for all damages, savings and profits on account of their said infringement of said trade mark and their unfair competition with complainant's business in the manufacture and sale of said beverage, and also of all costs on account of this litigation, a reference to a Master is waived by the complainant herein and this decree is hereby made perpetual and final without costs from either party to the other.

United States of America,
Northern District of Illinois, } ss.
Eastern Division.

I, H. S. Stoddard, Clerk of the Circuit Court of the United States, for said Northern District of Illinois, do hereby certify the above and foregoing to be a true and

complete copy of the certain Decree entered of record in said Court on the Ninth day of October, A. D. 1908, in the cause wherein COCA-COLA COMPANY is the complainant and MAX JACOBS, ET AL., ETC., are the defendants, as the same appears from the original record and files in said cause now remaining in my custody and control.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said Court at my office in Chicago, in said District, this Twenty-fifth day of March, A. D. 1910.

(SEAL) H. S. STODDARD, Clerk.
By JOHN H. R. JAMAR, Chief Deputy.

UNITED STATES OF AMERICA.
CIRCUIT COURT OF THE UNITED STATES.
Fifth Circuit and Eastern District of Louisiana.
November Term, A. D. 1906.

New Orleans, Saturday, 5th day of January, 1907.

Court met pursuant to adjournment.

Present: The Honorable Charles Parlange, District Judge.

The Coca-Cola Company,
vs.
A. L. Pilsbury, Jr.
No. 13405.

EXTRACT FROM THE MINUTES:

This cause came on to be heard this day, when:

Considering the joint motion of Counsel for Complainant and for Defendant, and the stipulation and agreement therein, all on file herein, and in accordance therewith:

IT IS ORDERED, ADJUDGED AND DECREED: That the preliminary injunction herein issued, in favor of Complainant and against the Defendant, enjoining the Complainant —

> "from manufacturing, preparing, selling or supplying "others for sale, any drink, syrup or extract under the "mark, symbol or name of 'Ko-Kola', or other device "identical with or like Coca-Cola; or from using any "other name or device calculated to induce the public "to believe that the drink, syrup or extract of defend- "ant is the same as Coca-Cola", —

be maintained and perpetuated; and that the demand of your orator for damages herein be dismissed, as having been compromised; and that the appointment of the Master herein, to hear evidence, etc., be revoked, as no longer necessary.

Decree rendered and signed in Open Court this (5th) Fifth Day of January, A. D. 1907.

(Signed) CHARLES PARLANGE,
U. S. Judge.

CLERK'S OFFICE:

I certify the foregoing to be a true copy from the original record in this office.

Witness my hand and seal of said court at the City of New Orleans, this 31st day of March, 1910.

H. J. CARTER, Clerk.

Endorsed: No. 13405. United States Circuit Court. The Coca-Cola Co. versus A. L. Pilsbury, Jr. Copy of Decree.

UNITED STATES OF AMERICA.
CIRCUIT COURT OF THE UNITED STATES.
Fifth Circuit and Eastern District of Louisiana.
November Term, A. D. 1906.
New Orleans, Saturday, 5th day of January, 1907.

Court met pursuant to adjournment.

Present: The Honorable Charles Parlange, District Judge.

The Coca-Cola Company,
vs.
he American Bottling Works. } No 13406.

EXTRACT FROM THE MINUTES.

This cause came on to be heard this day, when:

Considering the joint motion of Counsel for Complainant and for Defendant, and the stipulation and agreement therein, all on file herein, and in accordance therewith:

IT IS ORDERED, ADJUDGED AND DECREED: That the preliminary injunction herein issued in favor of Complainant and against the Defendant, enjoining the Complainant —

"from any further use of the mark or symbol 'Ko-
"Kola', or any bottled drink similar to the bottled
"drink known as 'Coca-Cola', manufactured by the
"Complainant, as described in the Bill of Complaint
"herein, or from in any other manner infringing upon
"the trade mark or trade rights of the Complainant"—

be maintained and perpetuated; and that the demand of your orator for damages herein be dismissed, as having been compromised; and that the appointment of the Master herein, to hear evidence, etc., be revoked as no longer necessary.

Decree rendered and signed in open court on this (5th) Fifth day of January, A. D. 1907.

(Signed) CHARLES PARLANGE,
U. S. Judge.

CLERK'S OFFICE:

I certify the foregoing to be a true copy from the original record in this office.

Witness, my hand and seal of said Court, at the City of New Orleans, this 31st day of March, 1910.

(Seal) H. J. CARTER, Clerk.

Endorsed: No. 13406. United States Circuit Court. The Coca-Cola Co. versus The American Bottling Works. Copy of Decree.

THE UNITED STATES OF AMERICA.
DISTRICT OF SOUTH CAROLINA.
IN THE CIRCUIT COURT, FOURTH CIRCUIT.
IN EQUITY.

COCA-COLA COMPANY and the COCA-COLA BOTTLING COMPANY, Complainants,
vs.
E. B. DONALD and H. G. BAILEY, Defendants.

This cause came on to be heard at this term after due notice to Counsel. After hearing Counsel for Complainants and considering the Report of the Standing Master filed in the case, it is

ORDERED AND DECREED, That said Report be in all respects confirmed and stand as the judgment and decree of this Court.

IT IS FURTHER ORDERED, That the Complainants pay to Julius H. Heyward, Standing Master, One Hundred Dollars ($100.00) for his fee in this case, and ———— Dollars costs of the court, for which sums in turn the Complainants shall have judgment against the Defendants, all to be enforced by execution on application therefor.

WM. H. BRAWLEY, U. S. Judge.

I, C. J. Murphy, Clerk of the said Court, do hereby certify that the foregoing Decree is a true copy of the original now on file in my office.

Given under my hand and seal of said Court, at Charleston, S. C., this the 4th day of June, A. D. 1906.

C. J. MURPHY,

(Seal) C. C. C. U. S. Dist. S. C.

Endorsed: The United States of America. District of South Carolina. In the Circuit Court. Fourth Circuit. In Equity. Coca-Cola Company and Coca-Cola Bottling Company, Complainants, vs. E. B. Donald and H. G. Bailey, Defendants. Decree. Filed June 4, 1906. C. J. Murphy, C. C. C. U. S. Dist. S. C.

UNITED STATES OF AMERICA.
DISTRICT OF SOUTH CAROLINA.
CIRCUIT COURT IN EQUITY.

THE COCA-COLA COMPANY and THE COCA-COLA BOTTLING COMPANY, Complainants,
against
H. G. BAILEY and E. B. DONALD,
Defendants.

REPORT OF STANDING MASTER.

TO THE HONORABLE, THE JUDGES OF SAID COURT:

This is a suit for injunction and for damages for the unlawful use of a trade-mark to which the complainants claim the exclusive right.

The bill alleges that the complainant, "The Coca-Cola Company", is the owner of a trade-mark consisting of the compound, coined word "Coca-Cola"; that under said trade-mark the said complainant and its predecessors have, since the year 1887 to the present time, been selling a beverage, the component parts of which are a trade secret belonging to said complainant, and compounded by said complainant only; that this compound is known as "Coca-Cola syrup", and under said trade-mark, is sold in foreign countries, as well as in trade with the Indian tribes, and in commerce among the State of the Union; that this trade-mark was duly registered by said complainant in the proper office in the City of Washington, on the 31st day of January, 1893; that on July 21, 1899, said complainant assigned, with certain reservations and conditions, to J. B. Whitehead and B. F. Thomas, the exclusive right to prepare and sell the beverage made from the said ingredients prepared by said "Coca-Cola Company", and the right to use, in said business, the said trade-mark "Coca-Cola"; that subsequently the said Whitehead and Thomas conveyed their said rights with the assent of the said Coca-Cola Company, to the copmlainant, The Coca-Cola Bottling Company, who now have the exclusive right to prepare, bottle and sell, under said trade-mark, the said beverage known as Coca-Cola, within the territory specified in said assignment, including the State of South Carolina; that said business has assumed large proportions and is very profitable; that the defendants, under the name of the Union Bottling Company, have engaged (presumably at Union in the State of South Carolina) in manufacturing and selling to the public an inferior liquid, similar to said Coca-Cola, put up in bottles, bearing labels upon which is printed the word "Coca-Cola", in violation of the rights of complainants; that demand has been made upon defendants to stop said violation and infringement upon the rights of complain-

ants, which demand has been refused.

WHEREFORE, etc.

The prayer is for injunction and damages.

The answer practically admits the use of labels upon which are printed the words Coca-Cola, but denies any intentional violation of any rights of the complainants, denies that as a matter of fact they have damaged the complainants by the use of said labels, and denies the right of the complainants to enjoin the defendants from further carrying on their said business.

As to the other allegation, the defendants deny that they have any knowledge, and demand proof of the same, upon the filing of the answer, and upon notice to the defendants, a preliminary injunction was granted prohibiting the defendants to use the labels containing the symbol "Coca-Cola", until the further order of the Court.

The cause having been reported to me to take the testimony and report upon the issues, I have taken the testimony which is herewith filed and upon the same respectfully report as follows: No one appeared before me for defendants.

I find as matter of fact:

That the coined word "Coca-Cola" has been in use as a trade-mark since the year 1887, and was only registered on January 31, 1893.

That said trade-mark and the right to use the same have passed through several successive hands to the complainant, The Coca-Cola Company, who is now, and was at the time of the filing of the bill herein, the owner of the same.

That the complainant, The Coca-Cola Bottling Company, has the exclusive right to the use of said trade-mark in the State of South Carolina.

That the defendants were, at the time of the commencement of this suit, and until the service of the order of injunction, herein engaged in selling a beverage similar to that made by the complainants, but inferior thereto in quality, and put up in bottles upon which was pasted a label with the word "Coca-Cola" printed thereon.

That said business was conducted and said labels used without authority from the complainants or either of them, and was necessarily injurious to their business.

That the defendants were, before the commencement of this suit, requested to desist from the use of said label, but said request was refused.

That the profits realized by defendants from the use of said label amounted to the sum of about One Hundred and Twenty-Five Dollars.

At common law, a trade-mark was recognized and pro-

tected by the courts before the formation of the government of the United States. The jurisdiction was based upon the theory of protection of the public from imposition and fraud and protection of the owner of the trade-mark from "unfair competition". The remedy was in damages, and for a long time the Courts of Equity refused to grant an injunction in such a case, holding that there was an adequate remedy at law. It was not until the time of Mansfield that injunction was allowed. In the meantime several of the States of the American Union enacted laws for the protection of trade-marks, some of which differ materially from others. No attempt was made by the Congress of the United States to pass such a law, however, until the year 1870, when an act was passed entitled "An act to revise, consolidate and amend the Statutes relating to patents and copy-rights", part of which provided for the registration of trade-marks, and appears in the Revised Statutes as Secs. 4937 to 4947 inclusive. This was followed by the act of 1876, which made it a criminal offence to counterfeit "trade-mark goods", or to "use or deal in trade-mark goods", the trade-mark thereon having been duly registered. Both of these Acts were held by the Supreme Court, in the case of U. S. v. Stiffins, to be unconstitutional and void, upon the ground that Congress has no constitutional right to deal with any matter of trade, except such as related to commerce with foreign countries, or the Indian tribes, or among the States of the Union, and that the Acts in question undertook "to establish a universal system of trade-mark registration for the benefit of all, etc., without regard to the character of the trade", etc., (100 U. S. 550; U. S. v. Koch, 40 Fed. 250).

In the year 1881 Congress passed an Act entitled "An Act to authorize the registration of trade-marks and protect the same (21 Stats. at Large, 502). This Act is confined, however, to trade-marks used in foreign commerce or commerce with the Indians. By the Act of 1882 (22 Stats. at Large, 298), its provisions were extended to trade-marks used in such commerce at the time of the passage of the Act of 1881. In 1905 an Act was passed entitled "An Act to authorize the registration of trade-marks used in commerce, foreign nations, or among the several States, or with Indian tribes, and to protect the same". (33 Stats. at Large, 724). Both the Act of 1881 and that of 1905 contain clauses saving to the owner of a trade-mark any rights he may have at Common Law or in Equity. The trade-mark in this case was adopted in 1898 and registered in 1893. Had it not been shown that it was used in foreign commerce and commerce with the Indian tribes, a question

might have arisen as to the validity of the registration, inasmuch as the Act of 1881 does not provide for the registration of trade-mark used in commerce among the States. The evidence shows, however, that this trade-mark is used in foreign commerce and commerce with the Indian tribes, and to that extent, is, no doubt, conclusive as to the registration as far as it goes. But the infringement complained of, occurred within the limits of one of the States. The registration of a trade-mark used solely in commerce among the States.

Can the Act of 1905, which includes such cases, be applied to a registration made before that Act was passed?

I assume that I am not required to answer this question, if it be necessary that it should be answered, and therefore leave it for the consideration of the court.

There is no doubt that aside from the provisions of the registration Acts, the complainant has a right at Common Law, or in this Court, at the present time, to a remedy upon the case as established by the evidence. Unfair competition has always been good ground for relief either at law or in equity, and the proof here is clear that the defendants have been engaged in selling an inferior article under a label bearing a symbol or word so nearly resembling the trade-mark of complainant, as to deceive the public and injure the business and reputation of the complainants. Under such circumstances, proof of fradulent intent is not necessary. (McLean vs. Fleming, 96 U. S. 245; Menendez vs. Holt, 128 U. S. 514; Amoskeag Mfg. Co. vs. Trainer, 101 U. S. 63.)

These cases show that the complainants are entitled to a perpetual injunction.

As to damages, it appears from the evidence, that the defendants are financially irresponsible. This cannot, however, deprive the complainants of their right to a judgment, if they are otherwise entitled thereto. In this court, complainants are entitled to an injunction and an accounting for profits made by defendants in the unlawful business, but not to vindictive or exemplary damages. (Taylor vs. Carpenter, 11 Page Ch., 293, 2 Sand. Ch. 903; Hennessy vs. Wilmerding-Loewe Co., 103 Fed. Rep. 90.) Defendants have admitted under oath, that they made a profit of One Hundred and Twenty-Five Dollars on the sales of their compound under the spurious label "Coca-Cola." For this amount the complainants are entitled to judgment as actual damages. Counsel for the complainants has announced that they claim no more, and are willing to pay the costs of Court and fees of Standing Master if not collected from the defendants.

I find as matter of law:

That the complainants are entitled to a perpetual injunction against the use by the defendant of the spurious trade-mark "Coca-Cola" heretofore used by defendants.

That the complainants are further entitled to judgment against the defendants for the sum of One Hundred and Twenty-Five Dollars and costs.

That the defendants being financially irresponsible, the complainants should be required (and have expressed their willingness) to pay the costs and expenses of this suit.

All of which is respectfully submitted.

JULIUS H. HEYWARD,
Standing Master.

Greeneville, S. C.,
April 27, 1906.

I, C. J. Murphy, Clerk of the said Court, do hereby certify that the foregoing Report is a true copy of the original now on file in my office.

Given under my hand and seal of said Court, at Charleston, S. C., this the 30th day of April, A. D., 1906.

(Seal) C. J. MURPHY,
C. C. C. U. S. Dist. S. C.

Endorsed: United States of America, District of South Carolina, Fourth Circuit. In the Circuit Court. The Coca-Cola Company Complainants, against H. C. Bailey et al, defendants. Report of Julius H. Hayward, Standing Master. Entered on Journal, Page. Filed 30 day of April, 1906. C. J. Murphy, C. C. C. U. S. Dist. of S. C.

Chattanooga, Tennessee,
Thursday, March 23, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances, same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED:
DR. JOHN WILLIAM MALLET,
resumed the stand for further examination:

DIRECT EXAMINATION, Continued,
BY MR. HIRSCH:

Q. I believe yesterday you stated where you had obtained the samples which you analyzed.

A. Yes, sir.

Q. Could you state the results of your analyses of those samples?

A. Yes, sir; I can read you out the figures if you wish, but I have it in printed form, and it would probably save you a little time.

(The witness passed his answer to counsel and jurors, and it was as follows:)

ANALYSES OF COCA-COLA SYRUP.

	Fountain syrup from Chattanooga Sp. gr. at 15° C. equals 1.259. Reaction strongly acid.	Fountain syrup purchased at Charlotteville. Sp. gr. at 15° C. equals 1.257. Reaction strongly acid.	Bottlers' syrup from Chattanooga Sp. gr. at 15° C. equals 1.287. Reaction strongly acid.
Sugar (chiefly sucrose and invert sugar—calculated as sucrose)	52.64	52.51	58.26
Caffeine (with a minute amount of theobromine)	.21	.21	.19
Phosphoric acid (H_3PO_4)	.27	.25	.30
Citric acid	.03	.03	.04
Tannin and extractive matter, caramel, glycerine, etc., (by difference)	3.55	3.42	4.25
Mineral matter (ash), other than phosphoric acid	.07	.06	.09
Alcohol	.60	.57	(.53)
Water	42.63	42.95	(36.34) with minute amount of essential oils.
	100.	100.	100.

J. W. MALLET.

Q. Did you find any oils present in these samples?

A. There was evidence of the presence of a small quantity of essential oils, as they are called.

Q. Could you determine the quantity of oil present?

A. No, sir; the amount was too minute.

Q. How did you know they were present?

A. From the odor.

Mr. Miller: From what?

The Witness: From the odor, the smell.

BY MR. HIRSCH:

Q. Have you made any analyses to determine the amount of caffeine that is present in an ordinary cup of coffee or tea?

A. Yes, sir.

Q. What was the result?

A. Perhaps I should state in advance what the analyses were.

Q. State fully.

A. I have the ordinary infusion of tea and coffee prepared in my own household as we commonly used it. Of

course, there is a considerable variation in different strength of the infusion prepared. I, myself, gave instructions that they should be prepared as they ordinarily were, without any divergence from our ordinary practice. There were three samples and the results that were given, I have them in printed form and they can be distributed.

Mr. Miller: Just a moment. I wish to interpose an objection to the analyses of tea and coffee, first because it is irrelevant, and secondly because he says there is such a variation in the quantity used, and this is as he uses it in his household. I submit that is not sufficiently connected with this case or akin to it to be of material value.

The Court: Before introducing this, you may ask the witness about how the coffee was prepared in his family, the strength of the coffee and the tea as he observed it. An far as the first ground of objection is concerned, I overrule it.

BY MR. HIRSCH:

Q. You have traveled around a good deal, have you, Doctor?

A. Yes, sir.

Q. State how the strength of the coffee and tea as you usually found it in your travels, compared with that you are about to describe that was used in your own household.

A. I think the tea was about the average strength, as far as I could judge. The coffee was also quite within the range of ordinary use, but probably stronger than most generally used. We like coffee rather strong, though not extraordinarily so.

Q. Now, I will ask the Doctor —

Mr. Miller: And we object.

The Court: The exception is overruled.

The Witness: To make the table intelligible, I had better state just what was analyzed. In the winter, we generally use ordinary hot tea, which is black Ceylon tea. In the summer, we use a good deal of iced tea which is prepared hot and poured over the ice. That was Japan green tea. The coffee was sold as Bogota coffee, but I am reasonably sure was Brazillian coffee. The tea was prepared the used way by pouring hot water over the tea leaves. The coffee was a drip coffee, percolated, the hot water poured over the coffee and allowed to filter through. The other two analyses of Coca-Cola syrup speak for themselves. They were the ordinary drink used at the soda fountains and also the bottled goods. With this explanation, the figures speak for themselves. I simply determined in each case the quantity of caffeine present in a cup, and as cups vary

in size, I defined the size. The hot tea was drank from an ordinary size breakfast cup, which I found in the case of my own household, held five fluid ounces, as usually filled. The cold tea was drunk from glasses of considerably larger size, and the amount of liquid over and above the ice, not taking into account the ice — the space occupied by the ice — was eight fluid ounces. The coffee as taken in the morning, was mixed with hot milk in the proportion of three parts by bulk of coffee infusion to two parts of milk. The after dinner coffee was drunk from smaller cups. The morning breakfast cups were the same as for the tea, and the after dinner cups, taken without milk or sugar, and the cups held two fluid ounces, and I have here the results printed.

(The witness here passed the answer to the jury and the counsel and it was as follows:)

RELATIVE QUANTITIES OF CAFFEINE IN TEA, COFFEE AND COCA-COLA.

		Grains of Caffeine
Black tea— hot	1 cupful (-5 fl. ox.) contained.	1.54
Green tea— cold	1 glassful (-8 fl.oz. exclusive of ice) contained.	2.02
Coffee— with hot milk	1 cupful (-5 fl. oz., 3/5 coffee, 2/5 milk) contained.	2.61
Coffee— "black"	1 after dinner cupful (-2 fl. oz.,) contained.	1.74
Coca-Cola ("Fountain")	1 drink (-1 fl. oz. syrup) contained.	1.21
Coca-Cola ("Bottlers")	1 drink (- fl. oz. syrup) contained.	1.12

J. W. MALLET.

BY MR. HIRSCH:

Q. I notice at the bottom, Coca-Cola, Fountain and Bottlers. Did you make analyses of the one you purchased in the open market at Charlotteville, Coca-Cola Syrup?

A. I shall have to refer to my book for that. I think that was the one.

(After reference.)

Yes, I cannot tell you positively whether the sample was the one purchased to open market, but the results were the same with that as with the sample sent from Chattanooga.

Q. Have you seen what is called here Merchandise No. 5 manufactured?

A. Yes, sir.

Q. Whereabouts?

A. At Maywood, New Jersey.

Q. Can you tell me the materials that were used in the manufacture of No. 5?

A. Yes, sir.

Q. Would you do so?

A. The material entering into the composition of No. 5 are three in number, the coca leaves previously deprived of their cocaine, the associated alkaloids, cola nut and wine, dilute alcohol in the form of wine.

Q. Can you tell me approximately how much coca leaves and cola nuts were used?

A. I cannot tell you accurately, but there were several hundred pounds used to each batch of nine hundred gallons of the product, and the nine hundred gallons is again only approximate.

Q. Do you know about what proportion of the coca leaves and cola nuts were used?

A. Roughly speaking, about three times of the coca leaves as of the cola nuts.

Q. Have you received a sample of this number 5, and if so, from what place?

A. I received a sample of it from Atlanta, from the factory, and I also took a sample at Maywood of that which I saw prepared, and I also prepared a sample myself, following the process of manufacture used in Maywood, but on a smaller scale, a laboratory scale.

Q. Did you compare these three samples?

A. I did.

Q. With what results?

A. They were undistinguishable by general observation.

Q. Did you make any tests of the constituents of No. 5?

A. Yes, sir.

Q. With what results?

A. My attention was drawn especially to those constituents by which it could be recognized as being derived from the coca leaves and cola nuts. There were many substances, more or less, indeterminate in character, but the most important substance was the peculiar tannin or a substance derived from tannin resident in the coca leaf, and the caffeine and theobromine derived from the cola nut.

Q. You heard Howard Candler's testimony?

A. Yes, sir.

Q. He said he sent you two samples from Atlanta?

A. Yes, sir.

Q. Did you make any test in regard to those samples, and if so, state how those tests were made.

A. Those two samples purporting to be, the one the regular fountain Coca-Cola syrup; the other, the same thing with the omission of the material known as Merchandise No. 5, were sent to me at my request, and the immediate object was to determine whether a different taste or flavor could be perceived due to the omission of Merchandise No. 5. The second sample, however, the one of the regular syrup, was also used for comparison with the Maywood sample, and the one prepared by myself that I referred to a moment ago.

Q. How did you test to see if there was any difference of flavor in the samples?

A. I diluted each of them with the same amount of water and tasted them and perceived a distinctly different flavor, other substances having a taste present in larger amount, sugar for example; the difference is of course not very great. I distrusted my own senses, feeling that I might fancy a difference where there was none, and I afterwards repeated the experiments in this form. I got a friend —

Mr. Miller: We object to that. That is evidently based on hearsay.

Mr. Hirsch: No, it is not.

The Court: It is difficult to determine as yet. Continue.

The Witness: I simply got a friend to hand me the two samples, I not seeing the bottles from which they were taken. He had diluted them — No, I had myself diluted them with water before to the required extent. I then tasted them and correctly named the samples, identified them as coming from the respective bottles.

BY MR. HIRSCH:

Q. Have you seen Coca-Cola manufactured?

A. Yes, sir; at Atlanta.

Q. Can you state whether No. 5 enters into Coca-Cola from having seen it manufactured?

A. Yes, sir; it is one of the ingredients.

Q. Did you hear Howard Candler's description as to how Coca-Cola was manufactured?

A. Yes, sir.

Q. Was that the way it was manufactured when you saw it?

A. Substantially. He said the caffeine — I think he was asked when the caffeine was introduced — and un-

derstood him to say either at the second or third kettleful of syrup. The one which I saw manufactured, it was introduced at the second kettle.

Q. Is caffeine a drug?

A. No, sir — well, it is a drug when used for medical purposes, but it is not always under all circumstances a drug.

Q. What experience have you had with the use of caffeine-containing beverages?

A. I have had my own experience, and general observation of others who use it, but my attention was particularly directed to it during the Civil war, as given to, or of necessity withheld from troops.

Q. What is the result of your experience both in yourself and during the war with the use of caffeine-containing beverages?

Mr. Miller: I object to that as being too general.

The Court: I think that exception is well taken. You can ask him about any particular experience.

BY MR. HIRSCH:

Q. Have you had any particular experience with the use of coffee yourself?

A. Ordinarily, the ordinary individual use.

Q. What quantities and how long?

A. You mean on myself?

Q. Yes.

A. I have generally taken from one to two cups of coffee a day.

Q. For how long?

A. Oh, for a great many years, forty or fifty years.

Q. Did you notice the use of it during the time you speak of during the Civil War period?

A. Yes, sir.

Mr. Hirsch: Now, I submit that I can ask him as to the results.

The Court:: Ask the question, and if there is no objection, he can answer it. If there is objection, I will rule on it.

BY MR. HIRSCH:

Q. What was your observation of the use of coffee during that time?

Mr. Miller: I object to that for the same reason given before.

Mr. Hirsch: The other day, a Doctor of Pharmacist was put on the stand and allowed to tell his observations in the use of Coca-Cola.

The Court: The exception is overruled.

A. Well, sir, the general result of my observation is that the use of caffeine or beverages containing caffeine in moderation, is not only not harmful but absolutely beneficial, sometimes very markedly so; and then, on the other hand, that excessive use of caffeine may undoubtedly give rise to discomfort and a certain amount of disturbance to health.

Q. Doctor, did you go through the entire Civil War?

A. Well, from October, 1861, to the end.

Q. Doctor, in your opinion is caffeine a habit-forming drug?

A. No, sir; not in the correct use of the expression "Habit-forming."

Q. I wish you would explain what you mean by "the correct use of the expression 'habit-forming.'"

A. I mean this sir. — that habits are of two kinds, anything we do repeatedly becomes in a sense a habit. What is generally understood by "habit-forming" drugs involves —

Mr. Miller. (Interrupting.) Now, as I understand, he can give his understanding, but I think the general understanding is as well understood by the jury as by him.

The Court: If the witness by "general understanding" means the general scientific meaning cast to that phase, he may answer. If he means the general popular understanding the answer would be improper. If technically used among scientific men, if he used it that way, he may state that.

The Witness: That is the sense in which I intended the expression to be used. In that sense the word or words imply three things, I think. In the first place, I think that the habit formed is a detrimental one, and an injurious one; and in the second place, that it is one which becomes so firmly fixed upon a person acquiring it that it is thrown off with great difficulty and with considerable suffering, or broken off, and in the third place, that the continued exercises of the habit increases the demand for the habit-forming drug.

BY MR. HIRSCH:

Q. Doctor, I will ask you this question: If you should take three samples from the same barrel of Coca-Cola and should use animal charcoal for the purpose of purifying the caffeine, would the results obtained as to the caffeine be the same.

Mr. Miller: I object to that; it is not pertinent here.

The Court: I do not see the bearing of that question.

Mr. Hirsch: That question Mr. Miller insisted on asking of Mr. Candler yesterday, and Doctor Fuller and Doc-

tor Emery testified they used animal charcoal. Both testified it changed, or they had a different result, and that question is to show if there is any reason why they would obtain different results or whether that was the correct method of obtaining the caffeine.

The Court: If that is your point, get directly to it; if that is the particular matter, you just ask him.

BY MR. HIRSCH:

Q. Doctor, is animal charcoal the proper method of getting the amount of caffeine in a given substance?

A. No, sir.

Q. Why not?

A. Because animal charcoal is used to remove coloring matter which it does by absorption and the absorption of the coloring matter is necessarily attendant with the absorption of considerable and variable amounts of the caffeine or other alkaloids.

Q. Can you account, Doctor Mallet, for the difference obtained in caffeine, say in caffeine contents by Doctor Fuller and Doctor Emery?

A. I can't say what difference there was in their particular analyses but I can say the method used was radically defective in that respect, and may have given rise to the difference.

Q. Doctor, did you make any tests regarding the appearance of the coca leaf and kola nut in Coca-Cola, and if so, state the results?

A. I confess I don't quite understand the question. You mean the materials that I saw at Maywood?

Q. Yes.

A. They presented the ordinary appearance commercially of coca leaves and kola nuts.

Q. Doctor, you testified as to your experience as to the use of coffee in the Civil War. State what that experience was.

Mr. Miller: I think he has certainly covered that. That would be merely cumulative; he stated that he saw it used throughout the War.

The Court: I understand he wants now to show to what extent.

The Witness: It amounts to this: As it is generally known, coffee was obtained with difficulty and to a very limited extent in the South during the Civil War, and I had repeated occasions to observe the difference in the condition of the troops which could be supplied with coffee, and those that were not given coffee.

BY MR. HIRSCH:

Q. What were those experiences?

A. A greater degree of energy — a readiness for action on the part of those troops who took coffee. If you wish a specific example, I can name one in that of the Battle of Williamsburg.

Mr. Miller: I object to that.

The Court: I think the objection is well taken; you could bring it out on cross-examination. That is simply a case of a specific instance.

BY MR. HIRSCH:

Q. At that time was there coffee for some soldiers and some who did not get coffee?

A. Yes, sir; that was the reason I mentioned that particular example, because on that occasion —

Mr. Miller: (Interrupting.) We object to it.

BY MR. HIRSCH:

Q. Do you drink tea in addition to the coffee?

A. Sometimes I drink it in addition to coffee but more especially in substitution for it; when I drink tea I do not drink coffee, and the reverse.

Q. Doctor, does Merchandise No. 5 have the odor of toluol?

A. No, sir.

Q. Could you detect the odor of toluol from Merchandise No. 5?

A. No, sir.

Mr. Hirsch: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Mr. Mallet, you are not a citizen of the United States, are you?

A. No, sir.

Q. You have not been naturalized?

A. No, sir.

Q. Now, you are or were, up until a short while ago, in the employ of one of the baking powder companies?

A. No, sir; I have made analyses on more than one occasion for one of the baking powder companies; I never have been in their employment continuously.

Q. Well, you speak scientifically or from a scientific standpoint, a moment ago, when you were defining a habit-forming drug?

A. Yes, sir.

Q. Well, you recognize the difference between a scien-

tific chemist or one who is engaged in chemistry from a scientific standpoint, and the commercial chemist, of course, don't you?

A. I don't know in what respect, sir — they have different objects in view, but as far as —

Q. (Interrupting.) Referring to these different objects, one of them is to try to ascertain the truth and delve into science, the other is trying to demonstrate whether or not a thing or substance is there present, that is a fact, is it?

A. Yes, sir.

Q. Didn't you, on behalf of one of the baking powder companies, write an article for publication in the Chemical News of London, purporting to be a scientific contribution to enlighten the world, when in fact you were paid for that contribution and it was placed in there at the suggestion of Mr. Hogan of the baking powder company?

A. No, sir. The contribution was written, the experiments were made and the results of them given actually as scientifically investigated on my own part.

Q. I know —

A. (Interrupting.) And these results were adopted by and I believe used by the baking powder company.

Q. I know, but didn't you write that article as a purporting contribution, as a matter of science, and have it published in the London News?

A. I did.

Q. And in fact were you not inspired to write that article and to have it published by Mr. Hogan who is the president of the baking powder company?

A. On the contrary, I myself suggested the making of the investigation.

Q. You suggested it to whom?

A. I have forgotten the name of the then president of the company.

Q. Well, it was Mr. Hogan.

A. Yes, sir, I believe that was the name, and I did so with this stipulation, — that the results should be published, no matter what they were, whether they were favorable or unfavorable to the baking powder company, that I should be free to publish them myself.

Q. You received money for that purported scientific contribution to literature, and received it from that baking powder company without the public being given knowledge of that fact until it was drawn out from you before the investigating committe under this Pure Food Law?

A. I will say that I made no concealment of the circumstances.

Q. You didn't tell it to the public when you wrote it, wrote that purported contribution to the scientific world?

A. I didn't know — it was warranted, I know, by the scientific investigation on my part.

Q. The fact is it was never publically known until it was drawn out at the Congressional investigation, is that a fact as far as you know?

A. I made no public statement of the results being used or being paid for it by the baking powder company, until, as you say, it came out in connection with the investigation you mention, but I never misstated the relation which I sustained —

Mr. Miller: (Interrupting.) I have not intimated that.

Mr. Sizer: Go on.

A. (Continuing) — to the baking powder company.

BY MR. MILLER:

Q. Well, the fact is you did not state in this article that you sustained any relations to the baking powder company?

A. No, sir, I did not. May I be permitted to say a word or two there in order to make myself — my position, very clear? I was applied to by the president of the company you mentioned to ascertain or to determine whether the use of alum in baking powder was wholesome or unwholesome. My answer was if I was permitted to investigate or make a scientific investigation with the perfect freedom of publishing the results, no matter what they should be, favorable or unfavorable to the baking powder company in question, I would do it. I made that investigation. I wanted to satisfy my own mind on the fact, and made the investigation and published the results. The results were afterwards used.

Q. The results were afterwards used, as you say, by the baking powder company but these results were favorable to the baking powder company that retained you?

A. They turned out to be so, but I had stipulated I should be free to publish them, equally free to publish them if they were unfavorable.

Q. You did not have to obtain the permission of the president of that company to publish what you found out about a certain baking powder did you — you had perfect freedom to do that, you enjoyed perfect freedom to do that without obtaining his permission?

A. No, sir; in view of the application made to me I should have considered it improper to publish results without the consent of the company unless I had made a stipulation in advance.

The Court: I think this is going too far, Mr. Miller.

Mr. Miller: The next question I was going to ask was if it was not a substance that was not in that baking powder that he experimented with, at all.

The Court: You are getting into a very collateral question — I think the cross-examination has gone as far as it should on that.

BY MR. MILLER:

Q. Now, in connection with the present case, Doctor, you say you are a doctor of medicine?

A. I hold the degree of Doctor of Medicine, but am not a practicing physician.

Q. Well, do you qualify as a physician or not?

A. I do not, because I have not practiced.

Q. And you are not prepared to state whether or not the effects of caffeine are harmful or otherwise on the human health?

A. I think I am prepared to state that, I am sufficiently acquainted with the general subject of medicine to be able to state that.

Q. Then you do, to that extent, qualify as a doctor of medicine?

A. Yes, to that extent.

Q. And as a doctor of medicine, why, you say that the effects are beneficial of caffeine, as you understand?

A. The moderate use of caffeine — containing beverages.

Q. Now, in the capacity that you are here, you were retained by The Coca-Cola Company to attend the taking of depositions at various places since this controversy began, and have traveled rather extensively, going as far as New Haven, and Boston, in connection with their experts, have you not?

A. Yes, sir.

Q. And you have been present at the taking of various depositions?

A. Yes, sir.

Q. Now, are you what would be termed a drug analycist, that is, one who analyses drugs, Doctor? Do you claim to know how to do that?

A. Yes, I think so, sir.

Q. What is the process that you adopt if you were given Coca-Cola syrup for determining, for instance, the amount of caffeine contained in the syrup?

A. I will give you the exact process that I have here.

Q. All right; do so.

A. I have my original notes. You refer to the caffeine only?

Q. Yes, I refer to the analyses you made of the Coca-Cola syrup that was sent to you by Mr. Howard Candler.

A. You refer only to the caffeine — I have got one method of analyses —

Q. (Interrupting.) Yes, give everything that you did with it from the time you received it until you analyzed it and prepared and published this statement which you filed.

A. With reference to the determination of the other constituents, — shall I give you the caffeine only?

Q. Give them all, please, slowly.

A. Well, the first head is that of sugar. The sugar was diluted immediately with water. Cleared with lead hydroxid — the excess of lead was removed by sulphretted hydrogen gas. The solution was filtered. The excess of sulphretted hydrogen was removed by heating. The sucrose, that is the ordinary sugar, was inverted by careful heating with hydrochloric acid.

Q. Could you give us that process without reading from what you have there, could you just fold up what you have and tell us what you did?

A. I could in a general way, but I should be very apt to fail to follow, I do not remember the individual instances. I made these notes at the time.

Q. Can't you, without referring now to any prepared data in writing, tell us in a general way the method you adopted to determine, for instance, whether or not caffeine in preparation — or whether there is coca in the preparation, without referring to those notes?

A. Yes, sir; I began by saying if you want caffeine only I could read that very briefly.

Q. Suppose you just close your notes and tell us from your recollection without studying them what you did in order to determine whether or not there was any caffeine there?

A. I may possibly omit one or two minute steps without the notes. The clearing agent used was lead hydroxide.

Q. What followed that?

A. The solution cleared by this hydroxide was filtered, the excess of lead removed by, in this case, carbonic acid gas, at a boiling temperature. The solution was then shaken up with chloroform in successive proportions — chloroform solution.

Q. You say successive proportions, how many times?

A. Four, if my recollection is clear, I may be mistaken but I think four times.

Q. Are you not familiar enough with the process to tell us if it was four or less?

A. About four times, which is the usual number I use.

Q. Do you mean to say you do not know whether that is the usual and standard method of doing it or not?

A. Yes. It depends upon the amount that would be lost by evaporating the last portion of chloroform. You go on until the chloroform has extracted practically all. The chloroform solution is evaporated to dryness, gently heated, the residue dissolved again with water containing one per cent of sulphuric acid, and the caffeine precipated by what is called Wagner's solution of eothine, the solution being of standard strength previously determined, and the amount used being known. It was used in excess, and after filtering off the precipitants obtained by the action of this agent on the caffeine, the excess of eithine in the filtrate was determined by a standard solution of what is called thio sulphate of soda.

Q. What is the standard solution of that preparation?

A. What I mean by standard solution is one of determinate strength. It is immaterial what the strength is, but you must know it.

Q. What was it?

A. It is what is known as one-tenths normal.

Q. Do you mean one-tenth of one per cent?

A. No, sir; one-tenth normal solution. What is meant by normal solution is one containing the equivalent in grams to the litre of the molecular weight of the substance used.

Q. What is that percentage?

A. I could not tell you that without calculation.

Q. You have told as near as you can when you say one-tenth solution?

A. No, sir; not one-tenth solution, one-tenth normal solution. It is perfectly well recognized.

Q. I am trying to escertain how you knew this was a standard solution, to be plain with you.

A. By testing it against some standard solution of thio sulphate of soda.

Q. Did you make the same test to see if it was standard?

A. I prepared the solution.

Q. Proceed.

A. That is all.

Q. Now, having determined how much eothine ——

A. Having determined how much eithine was left in the liquid filtered off, I substracted from the total amount and I had the amount corresponding to the caffeine. There is a definite relation in weight between the amount of caffeine and of eothine. If you know the amount of eothine,

you know the amount of caffeine precipitated. I determined the amount used by substracting the whole quantity, the amount left over after the filtration, and that gave me the amount of eothine, and by comparison, the amount of caffeine precipitant. The process is what is known as Gonberg's process.

Q. Without referring to your notes, to refresh yourself as to the precise process, I simply want to know if you were sufficiently acquainted with that process to tell us what it was.

A. Certainly.

Q. How you conducted it.

A. Yes, sir.

Q. Now, you may refer to your notes, if you prefer, and tell us how much of the Coca-Cola mixture you used in making this analysis.

A. My recollection is four hundred cubic centimeters — no, sir; upon reference to this I see it was two hundred cubic centimeters.

Q. How much caffeine content did you get?

A. That I cannot tell you without a calculation, because I calculated it into the form of percentage at once and so reported.

Q. Have you your notes which you made of that?

A. No, sir; I have not got the notes of that.

Q. You cannot tell how much you found?

A. No, sir.

Q. Now, tell us those drugs that you used there, those chemical substances rather, that you used to determine the caffeine content, — did you test to see what they were?

A. Yes, sir.

Q. All of them?

A. Yes, sir.

Q. Where was that experiment conducted?

A. At the University of Virginia Chemical Laboratory.

Q. And when?

A. The analysis, of course, took some time. It was chiefly in the month of January. The report was made on the 18th of February, 1910.

Q. Chiefly in the month of January?

A. Yes, sir.

Q. Did you have any assistance in doing that work?

A. None.

Q. None at all?

A. No, sir.

Q. Now, what was your test for determining the coca contents?

A. You mean of the derivative from the coca leaf?

Q. Yes.

A. It was impossible to determine that quantitively. They were necessarily grouped together as shown in the particular analysis.

Q. I asked you what was your test for determining whether that was true.

A. As to their presence?

Q. Yes.

A. Depended mainly upon the peculiar action of the tannin on tannin derivative contained in the coca leaf.

Q. The tannin derivatives are contained in a great many other leaves also?

A. No, sir. There may be more than one tannin derivative present. Possibly there are, but the tannin content of the coca leaf exhibit a very peculiar reaction which I observed is the first instance from an infusion made directly from the coca leaves themselves, and subsequently verified the same reaction as given by Merchandise No. 5 and extracted from Coca-Cola syrups by means of acetic ether, a material giving exactly the same reaction.

Q. But you say there are various tannin derivatives?

A. Yes, sir.

Q. Now, in what growths do you find the tannin, and what are some of the tannin derivatives?

A. There are numerous tannin and tannin derivatives, found in oak bark, and a host of other things having certain properties common to all or to many of them, and some of them giving peculiar reactions.

Q. Any of these in tea?

A. Certainly.

Q. Are they in leaves in general?

A. In a great many leaves.

Q. A great many growths?

A. Yes, sir.

Q. Have you ever studied especially the tannin derivatives?

A. I have studied some of them. It is a very numerous class by itself. I cannot say that I have studied all of them.

Q. What is the peculiarity of any derivative of tannin as contained in the coca from that as contained in various other tannin-bearing leaves?

A. The tannin or tannin derivatives in the coca leaf, exhibit, in the first place, the production of a dark green color with salts of iron.

Q. All tannin do that, don't they?

A. No, sir.

Q. A great many do.

A. A great many do but some give purple and some green and this belongs to the green class.

Q. Yes?

A. In the next place it gave a red coloration a very dark red coloration with cyanide of potassium and ammonia. That is also common to a great many tannins. It gave several other reactions with mineral solutions and exhibited what is by no means common, a failure to precipitate, either with gelatine or cinchonine.

Q. Now, through what process did you put this to determine the particular evidences that were given from which you conclude that it might have been taken from the coca leaf?

A. I prepared in the first instance, as I have said, an infusion directly from the coca leaf itself.

Q. I am speaking about after you left the process which would have shown no marked evidence of its being a derivative from the tannin and coca. Now, let us get to the point where you left and come down to the place where you used certain means for determining whether or not it was a derivative from the tannin found in the coca.

A. By comparison with the infusion from the coca leaf—comparing that with all the tests used, including those which did and those which did not give an affirmative reaction.

Q. But you say there are a great many tannins, and with many of them you are not familiar?

A. That is true.

Q. You also say they bear a very marked resemblance in certain instances?

A. And certain differences.

Q. Now, the tests to which you resorted, if I understand, and which rather confirmed you in your view that this particular derivative was of coca origin, were twofold, and these were the two last you named, and one of those was by comparing this derivative with what you found after having had some solution of the coca leaf?

A. No, sir; each of the reaction tubes differed to some extent; for instance, the color given with salts of iron is generally described as purple, or black, from certain kinds, and green from others, but there are smaller differences in the shades of purple, and the shades of green which are appreciable to the eye if placed side by side, and this particular tannin was in exact agreement in detail as to color of precipitant, kind of precipitant, and so forth,with every one of the reagents used.

Q. Through what process did you put coca leaves before you started this comparative process?

A. I made a direct infusion in water, and applied the various tests to that.

Q. Did you extract the cocaine or not?

A. The cocaine?

Q. Yes.

A. Certainly.

Q. Sir?

A. I did.

Q. Before you started this comparative process?

A. I made infusion both ways, and I used in part decocainized leaf and partly leaves in a crude condition.

Q. What did you do to decocainize the leaf?

A. I treated it with water, prepared an infusion to which the test was applied.

Q. Does that mean that you poured cold water over the leaf?

A. Allowed them to stand some time.

Q. How long a time?

A. I do not recollect, probably an hour.

Q. You as a chemist mean to say or want to go on record as stating that by pouring water over coca leaves, and allowing it to stand an hour, that would remove the cocaine?

A. No, sir; I thought you were referring to preparing the infusion of tannin.

Q. I ask you if you got all the cocaine out of those leaves, where you say you didn't have any cocaine in them when you were making the comparative tests.

A. I extracted that in the first instance by using hydrocarbon salts.

Q. How long did you allow that to stand?

A. For a considerable length of time, and repeated the use of hydro carbon salt upon it.

Q. How long did it undergo that process?

A. I cannot give you the exact time. I did it until I had extracted all the cocaine and could get no more.

Q. You did it until you could extract no more?

A. Yes, sir.

Q. You are not a man engaged in alkaloid work?

A. No, sir.

Q. You merely did it until you found no more evidence by using that process that there was cocaine in there?

A. Yes, sir.

Q. You do not profess to know the art of preparing alkaloids, do you, in a detailed way?

A. I know how they are prepared, as to some of them.

Q. Do you know the process through which these leaves go when they are treated at Dr. Schaeffer's factory — you

say you were up there?

A. Yes, sir. I do.

Q. Through what process are they treated or prepared?

A. I do not feel justified in answering that, because I was given access to Dr. Schaeffer's work, promising not to reveal his peculiar process of manufacture.

Mr. Sizer: We submit the witness ought not to be required to answer that question.

Mr. Miller: I want to ask him one other question before pressing that.

BY MR. MILLER:

Q. You were present in the court house yesterday when Dr. Schaeffer's deposition was offered in evidence in this case, were you not?

A. Yes, sir.

Q. Don't you know as a matter of fact that Dr. Schaeffer arrived in Chattanooga night before last and was secreted in the hotel all of yesterday?

Mr. Sizer: I object to that word secreted. He was not secreted. Mr. Miller saw him.

Mr. Miller: I did afterwards.

The Court: Dr. Schaeffer has nothing to do with this witness' cross-examination.

Mr. Miller: But I have a right to show that Dr. Schaeffer is here.

The Court: I don't see what it has to do with any question on the cross-examination of this witness.

Mr. Miller: If I am not permitted to prove that Dr. Schaeffer is here ——

The Court: I may at the proper time allow you to, but not in the cross-examination of this witness.

BY MR. MILLER:

Then I ask you if you went through that factory and saw the process by which these leaves were treated, and if you did, state what that process was.

Mr. Sizer: We object to that question. The witness states that he went through Dr. Schaeffer's factory under a promise to Dr. Schaeffer that he would not reveal his secret process. He has stated what he saw and what entered into the combination of Merchandise No. 5, and I submit that is all that is material, and that is the process by which that Merchandise No. 5 was manufactured, and it is not material in this case.

The Court: What is the materiality as a process?

Mr. Miller: The witness says he found something there which compares ultimately with one of the derivatives of tannin. We say that is just merely his conclusion, and the primary evidence of whether or not there is a derivative of

coca in there, which is appreciable, depends entirely upon the treatment of this leaf, as this witness himself has shown on the stand. Now, he was in that factory, saw that process and if he will give it to our chemist, who is here, we shall be able to demonstrate quickly whether there is any appreciable amount of that leaf left, or any derivative of it. This witness says he went through the factory, saw the process of manufacture, and he has also said on cross-examination that he found what he believed to be a derivative of tannin which came from this particular leaf, in his analysis. Now, I submit that we can only impeach—and I do not mean impeach in the sense of convicting the Doctor of making any mis-statements—but we can only disprove his conclusion or belief by ascertaining whether this leaf underwent the process which would deprive Merchandise No. 5 of every ingredient that would be contained in it as coming from the coca leaf.

The Witness: Pardon me, but you are attributing to me a statement that it would make a difference. It would make no earthly difference whether the cocaine was removed or not as respects the detection of tannin.

Mr. Miller: I understand that but you were not asked about cocaine.

The Witness: I understood you to say I have stated it would make a difference.

Mr. Sizer: The witness stated that he went through that factory and saw the process and manufacture of Merchandise No. 5 from the coca leaf and cola nut, that he got a sample of Merchandise No. 5 and analyzed it and found that the analysis of that sample corresponded with the work he had seen done, that he found in that sample certain substances that indicated that it had been made from the coca leaf. He testified further that he had manufactured in his own laboratory by the same process that Dr. Schaeffer followed, this same Merchandise No. 5. I submit that the exact process of manufacture is a matter that we are not required to reveal and that Dr. Schaeffer could not be required to reveal it, because it is on account of that process that he has the contract to manufacture this Merchandise No. 5.

The Court: That is the best evidence of what is left in the leaves, or whether there is any essential or appreciable amount. You are in the attitude of giving certain information and withholding other information, letting the Court and jury and the Government experts know something but not what is in this compound. I do not think that is right, and the only question is whether this witness ought to be compelled to reveal the process, or whether I should ex-

clude his evidence. Witnesses must not come here that know things they are not prepared to tell. If they don't want to tell, they had better not take the stand. They must state the facts that are material to this lawsuit. I do not want to injuriously interfere with anybody's business, when it is not necessary to this lawsuit, but I think if you were relying on the fact that there is some principle of coca or of cola in this compound, it is right that the Government should get the full information as to the process.

Mr. Miller: Counsel will bear me out that we have tried to avoid—

The Court (Interrupting): It is with them. If they prefer to withdraw the testimony of this witness as to the fact that coca leaves and cola nuts are used in the manufacture, they may withdraw it so as to not put this witness in the position of being compelled to state what the process is. If they want to leave that in, the witness will be compelled to state what the process is.

Mr. Sizer: We don't want to withdraw that testimony.

The Court: Then the witness will have to answer.

Mr. Sizer: Does your Honor hold that he is required to answer?

The Court: Yes.

Mr. Sizer: We want to reserve an exception to your Honor's ruling.

BY MR. MILLER:

Q. Now you have heard the ruling of the court, I will ask you if you were shown through this factory by Dr. Schaeffer and shown the process, tell us just what the process was by which these leaves were treated and tell us in detail.

A. You understand my position. It is a matter of perfect indifference whether I tell it all or not. It is merely in view of my promise not to reveal the details of the process, and perhaps I might avoid the difficulty and still answer the question with entire frankness.

The Court: I suggest that the Doctor give it to counsel and the chemist for the Government. There is no desire to injure the business of Dr. Schaeffer.

Mr. Hirsch: I suggest, to relieve Dr. Mallet's personal embarrassment, that he has promised Dr. Schaeffer not to reveal it, that we first get Dr. Schaeffer to tell it, and we will have Dr. Schaeffer submit it to the chemist, if they see proper.

Mr. Sizer: Or, they can put Dr. Schaeffer on the stand.

Mr. Miller: Oh, no, we don't want to put Dr. Schaeffer on the stand. You didn't.

Mr. Sizer: The only reason we didn't want to put Dr.

Schaeffer on the stand, is that he does not talk English very well.

The Court: If there is any peculiar machinery or apparatus or mechanical appliances that have nothing to do with the chemical results, those need not be shown. Just enough to enable the Government experts to work on that to determine the result of submitting coca leaves and cola nuts to that process. That is all that I require to be given.

Mr. Sizer: We would like to have one chemist designated. We don't want to give it to more than necessary. Dr. Schaeffer is very solicitous about it.

Mr. Miller: Well, we will designate Dr. Fuller and counsel to be present.

Mr. Sizer: Very well.

The Court: Proceed.

Mr. Miller: We have two chemists that we would like to have it submitted to. You know chemistry is divided into more than one branch.

The Court: Two chemists may be designated.

Mr. Miller: Very well.

BY MR. MILLER:

Q. If I understand, there is a difference between extract of coca as such, and the product that is extracted from coca and then divided into various extractives of its own?

A. I do not quite understand. An extract simply means that which is extracted or taken out of a drug by treatment with a particular salt. It is generally understood to be alcohol unless otherwise specified. Extract means something generally that is taken out of a drug with alcohol.

Q. Is an extract of coca cocaine?

A. Medicinal extract of coca would contain cocaine, but an extract could be made from the leaves from which the cocaine had been previously removed.

Q. What did you find to be the proportion of clorophyll in this Merchandise No. 5, or in the Coca-Cola syrup you analyzed?

A. I know nothing of the proportionate amount. I obtained indications though, not very distinct, of the presence of Chlorophyll but attached very little importance to it because chlorophyll is present in all green leaves.

Q. You don't show that in your analysis?

A. No, sir; for the reason that chlorophyll is always present in green leaves, and it would accord no special

signification of any character in coca any more than in other leaves.

Q. That same thing is true as to tannin?

A. No, sir; tannin is much more sparingly distributed in the vegetable kingdom than chlorophyll.

Q. But it is in a great many?

A. In a great many but chlorophyll is in all.

Q. In this analysis, you have one hundred per cent and that means all there is?

A. That is a result of grouping together the substances which could not be actually determined in that under one head which you will find specified, tannin, extracted matter and so forth. That represents the difference between all the other substances accurately determined and the whole bulk.

Q. Then you intended this analysis you filed to represent all the substances you could find in appreciable quantities?

A. Determinable quantities, quantities which could be accurately determined, and I then subtracted those from one hundred, and the difference is the substances which could not be individually determined.

Q. That was how much, referring to your analysis?

A. I have not a copy of it.

Q. 4.25 per cent?

A. Something like that—3.55, 3.42 and 4.25.

Q. I am speaking of the analysis of Coca-Cola syrup.

A. I find under the head of tannin extracted matter, caramel, glycerine and so forth (by difference) 4.25; in the bottlers; and 3.42 in one article of fountain syrup and 3.55 in the other substance.

Q. By that you mean that those combined substances which you have included under the general head of tannin and extracted matter, caramel, glycerine, and so forth?

A. Yes, sir.

Q. How much is the and so forth and how much is the other substances you found?

A. I cannot tell you because those substances were those for which no accurate determination was possible—they were grouped together.

Q. How much chemical product of the coca did you find there?

A. I cannot tell you because I have no method of accurately determining it.

Q. Then you are not prepared to state that you found any appreciable quantity?

A. Quite an appreciable quantity but how much I do not know.

Q. If you found an appreciable quantity, why can't you tell what it is?

A. Because I have no means of accurately distinguishing it from the other substances, and that is grouped together.

Q. Now, then, if you are not prepared to isolate that substance so as to tell whether or not it is there in any material extent or to isolate it at all and distinguish it from the other undistinguishable substances, how are you prepared to say that it is there at all?

A. I am prepared to say that it certainly was there because I obtained all the distinct reactions indicating its presence. There was abundant evidence to show that, but how much I cannot say.

Q. But you say you could not isolate that from the other substances that under this heading of tannin, extracted matter, caramel, glycerine, and so forth. Now, if you could not do that, how could you, by applying any reactive agent, determine that any one substance was there?

A. By simply observing the reaction that the other substances would not give.

Q. What was the reaction test?

A. I have made one of them, the reaction was a salt and iron. Glycerine would not give that reaction.

Q. What do you mean by reaction in that respect?

A. Observe the dark green color.

Q. What?

A. I observed the dark green color produced from the addition of a salt of iron to the tannin or tannin derivative. That was given to the extract from the Coca-Cola syrup.

Q. Now, that dark green reaction would be given by the tannin that would be there from a great many other leaves?

A. From some other sources. The precise source is not indicated except by the combined results from the various tests used.

Q. So far as that one is concerned, this did not speak anything because you could have gotten that from tannin from other sources?

A. No, sir. The various reactions individually might be obtained from other sources, but collectively—the result of all of them taken together—is not obtained from any other tannin that I know of. I do not say that it may not be given by others, but it is given by none that I know of.

Q. That is your conclusion from all of them, but I am dwelling first on the green color. That might have been obtained from tannin from various other sources?

A. Yes, sir.

Q. Now, pass on to the next step. What was that?

A. The failure to react with gelatine and with a solution of cinchonine.

Q. Did you adopt that or do that singly or collectively with the gelatine and the other substances you refer to, or did you combine the two together?

A. The tests were made individually, but the result considered collectively.

Q. Take the gelatine test; what was that?

A. A precipitant was not produced by the gelatine.

Q. What sort of preparation of gelatine did you use, and what did you do, give us the process.

A. Dissolved finest photographer's gelatine in warm water.

Q. How much?

A. I cannot tell you, enough to give a fairly visible solution, probably one part in two hundred of water.

Q. What kind of water, ordinary water or distilled water?

A. Distilled water.

Q. The ordinary spring water.

A. No, sir; distilled water.

Q. Then what did you do next?

A. You are inquiring about Coca-Cola syrup—I ought to have stated that so far as the detection of tannin was obtained, it was obtained by shaking up the syrup with acetic ether which dissolved the tannin and reactions were obtained from the residue left on separating that acetic ether solution.

Q. You had ether in there that I did not know about. I understood you to say first that you used a particular kind of salt and on that there was a green coloring, and you left that you went to the gelatin test?

A. Yes, sir; but those tests were applied to material extracted from the syrup so as to separate the caramel and other material present by means of acetic ether.

Q. Now after you had used acetic ether, how much of that did you use?

A. Enough by repeated shakings to take out at least the greater part of tannin present.

Q. How much of the Coca-Cola syrup were you using in that test to start with?

A. I am pretty sure it was four hundred cubic centimeters.

Q. Now, when you got down to the gelatin test, you put in one part to two hundred of water—I believe you said that?

A. Something like that, I did not measure it precisely.
Q. Now, what was the result?
A. No precipitant.
Q. That means nothing was precipitated at all?
A. No cloudiness, no precipitation. I have the notes of that here.
Q. Was there any coloring of the water?
A. No, sir.
Q. So that was a purely negative test, you didn't find anything after you introduced that into the water?
A. I got no precipitate.
Q. You said you got no coloring. Now I want to know what you did get. Nothing was precipitated and nothing was colored. What did you get and what did you learn?
A. I learned that it was not one of the ordinary tannins which would give a precipitate with gelatine.
Q. That is a most common thing to find tannins that don't give a precipitate?
A. No, sir; a great majority of them give precipitates.
Q. I infer from that that a goodly number do not.
A. No, sir; a small number.
Q. Some do not?
A. Yes, some do not, some tannin derivatives. I do not know that any of the tannins proper fail to give precipitates.
Q. This, you say, however, was a tannin derivative?
A. Mainly on the ground of a failure to obtain a precipitate with gelatine.
Q. Well, now then, when you introduced this residue that you have testified, after you had put it through the first process, into the second process—why you have got no coloring, you have got no precipitation?
A. Yes—
Q. (Interrupting) and as a consequence you had a negative action pure and simple?
A. Yes, sir.
Q. Are tannins derived from—
A. Yes, sir; they are sometimes in the cola nut or seeds ——
Q. And they are derived from the wine also?
A. Yes, sir.
Q. In some wine?
A. Yes, sir.
Q. Isn't it practically from all wines?
A. From the majority of wines, they contain some small amount.
Q. Do you mean to say that or do I understand you to say that you are prepared to give us a definite opinion

or a definite statement, rather, from your knowledge, as to whether or not other tannin derivatives would precipitate under like conditions?

A. Would precipitate or fail to give precipitates.

Q. Well, it would do one or the other, as the old woman said about the bad eggs, they would either sink or swim, she had forgotten which. You say it would or would not? Are you prepared to say that all tannin derivatives would precipitate or that they would not precipitate?

A. No, sir; I have endeavored to make my meaning clear by saying that enough tannin— would agree with the tannin from the coca leaves in some respects and the evidence that a particular tannin or tannin derivative came from the coca leaf would be obtained by proper test and some would give an affirmative and some a negative —

Q. (Interrupting) You say that some of them would give this same negative result, or that some of them might, that you found in this case?

A. Yes, sir—the same as catethein will do it.

Q. And a good many of them you say that you are similarly familiar with to be able to tell us they do?

A. A good many of them I myself have not experimented with. I am acquainted with them from the general literature which I have looked over in connection with my own experience.

Q. But you are not personally prepared to state what they would do?

A. No, sir.

Q. All right. Now, what was the next test that you resorted to?

A. Free precipitation by lead acetate. Dark green color with ferric-chloride and a deep red color with potassium perri-cyanide, and ammonia, reducing Fehling's solution, and is rendered orange brown by sodium hydroxid, but is only slightly if at all precipitated by gelatine solution or by cinchonium sulphate.

Q. And in that case you did—you failed to find any precipitation at all or observe any?

A. We would—

Q. This last test you made with the glycerine or cinchonium sulphate?

A. I noted at the time a slight trace with a gelatine solution or by cinchonium sulphate.

Q. Now, if there had been any wine tannin or derivative in there, that would have precipitated, would it?

A. I beg your pardon?

Q. If there had been any wine tannin in this mixture of Coca-Cola syrup that should have precipitated it, should

it not?

A. If it was wine tannin in sufficient amount.

Q. In sufficient amount?

A. Yes, sir.

Q. And that same thing would be true of the tannin that would have been derived, if any, from coca, if it had been there in sufficient amount?

A. It was present in sufficient amount having concentrated by dissolving it out with acetic ether.

Q. You concentrated all the tannin or all the tannic extracts and got it together and from that 400 cubic centimeters you are talking about—now then, if there had been wine tannin there and the coca tannin there, now could you tell which it was?

A. I could not tell if the mixture were of unknown preparation, I could not tell it except that the wine tannin would give a precipitate with gelatine.

Q. Now, you did not endeavor to ascertain, as I understand you, how many different kinds of tannin there were, or what they were taken from, that is, to isolate and what particular character of tannin or extract of tannin they were?

A. No, sir, I don't believe it possible to do so.

Q. And hence you cannot say what proportion there was of either?

A. No, sir, not numerically.

Q. Tannin is a substance that can be very readily precipitated by one who understands the art, can't it?

A. If you know the kind of tannin, it can be determined with a fair degree of precision, but not with a very great degree of precision.

Q. If you had known the kind that was used here, you could ascertain with reasonable degree of precision the quantity that there was?

A. I didn't know the kind of tannin.

Q. If you had known what it was?

A. Well, there are well-known kinds of tannin.

Q. Is that in coca very well known?

A. No, sir; I don't think so.

Q. You don't think it is?

A. No, sir.

Q. Has it been known for years and years?

A. It has not been examined with any degree,—

Q. (Interrupting) You went into this experiment without knowing very much about coca tannin?

A. Except from my own observation; I studied it with the view of determining the particular character for this very purpose.

Q. Having studied it, can you tell us whether or not there is any known method of determining what quantity of wine tannin of cola tannin and of coca tannin there would be in a mixture such as you had? If so, what is that method?

A. If the source of the tannin were entirely unknown I should not be able to determine. In this case I knew positively from observation the materials used in the preparation of Merchandise No. 5 and I knew the presence of merchandise No. 5 in the Coca-Cola syrup. I was therefore able to fairly estimate the proportions in which the tannin from these other sources ——

Q. (Interrupting) Therefore you went into this investigation upon the assumption that these preparations contained tannin that was originally manufactured or extracted and prepared in Doctor Schaeffer's factory?

A. Certainly, sir; I saw it there prepared.

Q. And you took this Coca-Cola syrup, assuming that Merchandise No. 5 had been used?

A. Certainly — I saw it used.

Q. And you say if you had not known that you could not have done it?

A. If I had had it presented to me with no such knowledge as to the use of the coca leaves in the preparation of Merchandise No. 5 and the use of Merchandise No. 5 in the preparation of Coca-Cola syrup, if I had had presented to me an unknown mixture, or samples from three sources named, I could not determine the amount ——

Q. And even with the knowledge that there was, or on the assumption, rather, that there was the tannin from the coca in this Coca-Cola syrup, you are not prepared to say what proportion of it was from the coca, what proportion of it from the cola, and what proportion from the wine?

A. I am prepared to say that the proportion must be very much larger from the coca leaves.

Q. How do you know that?

A. From the facts I have already mentioned.

Q. What are those facts?

A. I have seen the preparation of Merchandise No. 5 and have seen the amounts of the coca leaf and the kola nut used in making it, and seen Merchandise No. 5 used in the manufacture of the Coca-Cola syrup.

Mr. Miller: Now, I ask to exclude that answer; that is based entirely on his observation of a process which he has declined to give.

Mr. Sizer: You asked him how he knew it and he answered.

Mr. Miller: I am confining myself to his experiments.

And I most respectfully submit he should not give me his conclusions without telling what the thing is.

Mr. Sizer: When he asked him how he knew a thing,—he has a right to tell him how.

The Court: I think counsel may ask the question for the purpose of determining whether the opinion is well founded. And I think Mr. Miller asked the question in order to test the opinion of the witness. It appears that the basis of the opinion of this witness as to that extract of tannin in this compound is a fact of which he has knowledge derived from personal observation at the factory, and until he states the facts in connection with that, and the amount of the coca leaves and the process, his opinion being based on that, it will be excluded.

Mr. Sizer: That was in reply to his question, Mr. Miller's question. The question was asked whether he could determine the relative amount of the tannin in that mixture derived from the coca leaves and kola nuts, and he has definitely stated already that he did find and is able to testify that there was tannin there derived from the coca leaves by reason of certain experiments, and when it comes to the relative amount, he says he could not determine that ——

The Court: I think the witness stated that the extent of his knowledge was based on the process, he was asked how he determined that fact and he said he was unable to determine it without having seen the process. I exclude his opinion of the analyses of that compound until the facts in reference to its preparation are stated.

Mr. Sizer: I think your Honor is in error as to what Doctor Mallet testified. I think, your Honor, if you would have the stenographer read the question preceding the last one, so as to see whether he could determine ——

The Court (interrupting): Yes, the last question, I remember that; he said he could not tell even this tannin that was in there, the tannin from the coca as distinct from the wine and cola, unless he had known of the presence of it ——

Mr. Sizer: I will draw that out later.

The Court: But, independently of that, I am of the opinion that the question of amount, the relative amounts, are material in this controversy. It is a question whether the amounts are appreciable or not, and the Court and jury must pass upon that question in the light of the facts, and the opinion of a witness who is unable to determine relative amounts, and can only express an opinion that there is an appreciable quantity based on his actual knowledge of some facts not stated in court, should not go in evidence.

We want the facts in regard to this and not a partial statement.

BY MR. MILLER:

Q. Did you ever see coca growing, Doctor?

A. No, sir; I never.

Q. You never saw it green?

A. No, sir.

Q. Did you ever see kola?

A. No, sir.

Q. You don't know whether that design on the keg there is a reproduction of either or not?

A. No, sir.

Q. You are not prepared to say?

A. No, sir.

Q. Was there any Merchandise No. 5 sent to you by Mr. Hirsch from Atlanta?

A. Not by Mr. Hirsch.

Q. Was there any sent by Mr. Candler, what purported to be Merchandise No. 5, by Mr. Howard Candler?

A. Yes, sir; I have two samples.

Q. What was the size of them, Doctor, of the bottles?

A. You mean the Merchandise No. 5?

Q. Well, of both bottles?

A. Do you refer to Merchandise No. 5 or to Coca-Cola syrup?

Q. You got two bottles?

A. Yes, sir; labeled 1 and 2.

Q. Labeled 1 and 2?

A. Yes, sir; that is, of the Coca-Cola syrup.

Q. What was the size of both of those bottles?

A. My recollection is they were about ten or twelve ounce bottles.

Q. Then they were both about the same size?

A. Yes, sir.

Q. And how were they transmitted?

A. By express.

Q. Would you be prepared to recognize Merchandise No. 5 if you should see it and smell it?

A. I think so.

Q. And taste it?

A. I think so.

Mr. Sizer: Are you going to make him drink out of that jug?

General Cox: You can give him a Coca-Cola glass if you want it.

Mr. Miller: If you will furnish a glass, the glass you introduced here yesterday.

Mr. Sizer: I think the stenographer carried it off.

BY MR. MILLER:

Q. To what extent, Professor, are you familiar with the methods of isolation and identification of the active principles of drug products and medicinal products?

A. I know of them in a good many cases, I could not say in all.

Q. Is there no general method, or do methods vary?

A. I am sure I did not understand.

Q. To what extent are you familiar with them — are you a man that claims to be an expert in that kind of work?

A. In some of it, yes.

Q. What is the characteristic alkaloid of coca, Doctor?

A. The most important one is cocaine.

Q. I am not asking you the most important one. I asked you if it has a characteristic alkaloid, what it is.

A. There are several characteristic alkaloids, but one that is largest in amount and most important that is principally used, is cocaine.

Q. What are the other important alkaloids?

A. Bengol, ecgonine and cinnamyl.

Q. And these are all characteristic alkaloids of the coca?

A. All of them are characteristic alkaloids but they are not all that have been found. There are others still. One about which there is some doubt is known as hygrine.

Q. I am not talking about or asking you about that——

A. (Interrupting) There is some doubt as to its existence in coca —— hygrine.

Q. Did you discover any of that doubtful one in Merchandise No. 5?

A. None of the alkaloids in Merchandise No. 5.

Q. There are none of them in there?

A. No, sir.

Q. Could you state from your analyses whether or not the caffeine present was derived from the cola in this Coca-Cola syrup?

A. I could not say as to the caffeine, but there is also in the kola nut besides caffeine an alkaloid, theobromine, which is found in larger quantity in chocolate, that is found in Merchandise No. 5.

Mr. Miller: That part of the answer I ask your Honor to exclude because I did not ask about it.

The Court: The exception is sustained and the answer is stricken out.

The Witness: It furnishes an indication of caffeine, cola, from the kola nut, and in point of fact in Merchandise No. 5 there was no source from which caffeine could be derived.

BY MR. MILLER:

Q. My question was purely this: Could you or not tell from your analyses from what source the caffeine was obtained, or rather, whether or not it was obtained from cola.

A. The analyses of what?

Q. The analyses of the Coca-Cola syrup.

A. I could not tell. I understood you to say in Merchandise No. 5.

Q. Now, you stated during your examination this morning that you observed some soldiers who took coffee, that they were more stimulated than some who did not?

A. Yes, sir.

Q. And this you attributed, of course,—the stimulation —to the caffeine?

A. Certainly.

Q. And as a doctor of medicine you state that caffeine is a stimulant?

A. Yes, sir.

Q. As a doctor of medicine you state that it is not a poison?

A. I think it is not a poison, using the word "poison" in the ordinary accepted scientific sense.

Q. Now then, what do you mean by poison in the ordinary accepted scientific sense?

A. The word does not admit of an exact definition because even by scientific men it is used with a certain amount of variation, but I understand as the general accepted meaning of the word among scientific men, it is any substance which when taken into the body in stated amounts, and usually in relatively small amounts, acting chemically, is capable of producing on ordinary persons, or an average person, death or grave injury to health.

Q. Now, you yourself have used in that connection the term "virulent poison"?

A. Yes, sir; I suppose I have.

Q. And by that you meant one which was more poisonous than something else?

A. Yes, sir.

Q. And one that was poison in a smaller dose, or smaller doses than one that is poisonous in larger doses?

A. Yes, sir; and produces more violent effect.

Q. You have also referred to the use in your writings of such words, in connection with various drugs as toxicity and poisons, have you not referred to that as producing toxic effects and being poisonous?

A. I don't know whether I have or not, I think very likely I have.

Q. Then there are what you understand from a scien-

tific standpoint, certain poisons and toxins?

A. Yes, sir. The word toxin is used now in a very scientific sense — in a general way toxic is the same thing as poison, but the term toxin has come to be used in a specific use in regard to certain organic substances produced in bodies of living animals.

Q. Have you not stated and is it not a fact that the toxic or harmful effect of a drug — that is, not a virulent poison or a substance that is not a virulent poison — depends on its daily use?

A. On what?

Q. On its habituary daily use.

A. No, I don't know that I have.

Q. In the meantime, while we are finding that reference — I have this Merchandise No. 5, — that is, we have a sample here, and I will pass that to you and ask you to state whether or not the contents of that jug is Merchandise No. 5.

(The witness here examined the liquid, tasting it.)

A. I am inclined to think it is, though I am not positively certain about it.

Q. You stated, didn't you, that you could tell that when it was presented to you?

A. Yes, sir; I said I thought I could, but I am not positively certain. I should not be absolutely certain as to the difference between one wine and another, but my impression is that it is.

Q. That that is Merchandise No. 5?

A. Yes, sir.

Mr. Miller: We will ask to put in the jug which we have here, to introduce it in evidence as Exhibit No. 1 to this witness' deposition.

BY MR. MILLER:

Q. What is the odor you get from that, Doctor? Just describe it.

A. (After smelling the jug.) I don't know that I can describe it; it has a peculiar odor, it is derived no doubt from the volatile matters, probably in the nature of the essentials oils as they occur in the coca leaf.

Q. And that is as nearly as you can describe the odor of it?

A. Yes, sir; I do not know that I can describe it more minutely.

Q. Now then, referring to the question, or a few questions back, didn't you use this language with respect to one of your tests to ascertain whether or not a certain substance was poisonous or deleterious: "It may of course be

reasonably supposed that a considerably less quantity than would be necessary to produce decided discomfort when once administered might prove objectionable and injurious if habitually taken as a part of the bread of each daily meal"?

A. Yes, sir.

Q. And didn't you state this further before a Congressional committee with respect to substances that might prove harmful if taken in immoderate ——

The Court: There is no question about that, Mr. Miller, as to whether it might be harmful if taken in some quantity ——

Mr. Miller: My point was I think we have shown this was taken in daily consumption by the average consumer ——

The Court: (Interrupting) The only question is whether you apply that to caffeine — there are no doubt things that may and others that may not.

Mr. Miller: It is a fact if I understand, that taken in daily quantities, that is, taken with each meal, certain things become deleterious and injurious to health where one dose would not be so.

The Witness: That is undoubtedly so with some substances.

BY MR. MILLER:

Q. Is it also true that in your experiments to ascertain about that, you purposely took larger doses or utilized larger doses than were ordinarily consumed for the purpose of determining deleterious effects?

A. In the case of alum ——

Q. That would be so of any others ——

The Court: That is immaterial. As the Court has already ruled, the only question that would be proper here would be the inquiry in regard to caffeine; limit the cross-examination to caffeine.

BY MR. MILLER:

Q. I will ask you whether or not in the experimentation to ascertain the effects of caffeine, whether it would be proper to take larger quantities than are ordinarily administered for the purpose of ascertaining as to the deleterious effects.

A. Undoubtedly it is practicable to use larger quantities of a substance in order to indicate the character of the effect produced.

Q. I understand in your examination in chief you undertake to speak as a toxicologist when you speak about the harmful effects of this mixture.

A. I think I can say that I have had a good deal of experience.

Q. Did you speak from a toxicological standpoint when you gave your testimony in chief, — is what I wish to know.

A. Yes, sir. I was ready to testify as to a toxicological point.

Q. Now, what are some of the standard works on toxicology that you are familiar with?

A. Well, Doctor Witthaus' book on Medical Jurisprudence is a very good authority. Doctor Wormley's book on Chemistry of Poisons is a very good book. Taylor's Medical Jurisprudence, an English work, is a very good authority, and there are many others.

Q. I have asked you to name some of the others.

The Court: I think that is sufficient.

The Witness: Draggendorff.

BY MR. MILLER:

Q. Just a minute, and I will try to refresh your memory. What have you to say as to the work of Doctor Kobert?

A. He is a very good authority.

Q. And Doctor Cunkill?

A. I know of that book, I believe it is a good authority.

Q. And Doctor Kionki?

A. That also I think has become recognized as a good authority.

The Court: Is it your object in introducing this to contradict this witness by the textbooks as to matters this witness has expressed opinions on in the examination in chief?

Mr. Miller: He stated on his cross-examination that his opinion in chief was based in part on his knowledge of toxicology.

The Court: Yes, I understand that, but do you propose to contradict this witness by these works — contradict any opinion that he expressed on his examination in chief?

Mr. Miller: Yes, I think so.

The Court: I make an express distinction between opinions expressed in chief and on cross-examination.

Mr. Miller: That is the reason I asked him if he based his opinion in chief as a toxicologist.

BY MR. MILLER:

Q. How about Doctor Muccioli, is that a standard authority?

A. I cannot say.

Q. You are not familiar with that?

A. No, sir.

Q. Well, Doctor Gadamer's work on Toxicology, is that a standard?

A. Gadamer?

Q. Yes.

A. That, again, I know but very little of from personal reading. I have seen quotations from it.

Q. Well, that is regarded as a reputable authority, a standard authority, is it?

A. Generally so, I think. No one would ever commit himself to the position to agree with every statement contained in any kind of a work, he can only speak of the general reputation of the author as representing an average of scientific knowledge.

Q. You regard Doctor Schmiederberg as an authority on Toxicology and poisons?

A. Generally, but I cannot say that I would agree with everything as correct contained in his work.

Q. How about Muccioli, you say that is a standard or not?

A. I suppose it is, but I know very little of it.

Mr. Miller: I have not the book here. I will at this point close the examination but I will ask to recall this witness because I did not know he was going to base his statement on his knowledge of toxicology, there was no indication of it given on yesterday or until he stated on cross-examination that he did base his opinion which he expressed on his knowledge as a toxicologist. I have the books here but they are not in the court room.

The Court: What did he state in reference to a poison on the direct examination?

Mr. Miller: He stated that caffeine was not a poison.

Mr. Sizer: I do not think that he stated that.

Mr. Miller: Well, I appeal to the stenographer's notes.

The Court: Let the stenographer look it up.

Mr. Miller: He was asked as to whether it was a poison in chief and that is the reason I asked him as to the harmful or unharmful effect on cross-examination, I asked him whether he based that on his knowledge as a toxicologist.

The Court: The question as to whether he stated it was a poison or not — the stenographer can look that up, or that it was not a poison. The stenographer can look that up before you recall him.

BY MR. MILLER:

Q. What was that statement you made as to charcoal, the effect of charcoal on caffeine, in a mixture like the Coca-Cola syrup?

A. That in determining the amount of caffeine in an analysis, animal charcoal should not be used to remove the color because charcoal absorbs some of the caffeine itself and absorbs it to a variable extent.

Q. How do you know that fact?

A. From actual experience and from literature on the subject.

Q. What literature?

A. Allen's Organic Analysis.

Q. And will you kindly refer us to the page of Allen's work?

A. I can do it.

Q. Well, you need not do it right now.

A. I will refer to it if anyone has it here in court now.

Q. Did you test this mixture for caffeine, this Coca-Cola syrup?

A. Yes, sir; certainly, and determined there was caffeine in it.

Q. Now, you are sure there was caffeine in it?

A. Yes, sir; certainly.

Q. How did you determine that?

A. I have already given you the details of that. I can repeat it again if you wish them.

Q. Did you get the caffeine pure?

A. Yes, sir; certainly. I determined the amount by Gomberg's method, but I also specifically isolated the caffeine and obtained it in the pure state, proved it was caffeine.

Q. Now, what was your method of isolating this caffeine after you got this mixture, Doctor?

A. Well, substantially as shaking out with chloroform and purifying the caffeine afterwards.

Q. Did you weigh the caffeine?

A. No, I did not because it was so obtained, for the reasons I have given.

Q. But you purify that caffeine when you got it out?

A. In that case, I did, used animal charcoal, I used animal charcoal — it is perfectly proper to use it in getting some of the caffeine in the pure state.

Q. Did you use the animal charcoal in your experimentation?

A. Not in determining the amount. That is the exact point involved — if you simply want to obtain some of the caffeine in a pure state, it is perfectly proper to use animal charcoal, but if you want to obtain the amount, it is entirely erroneous to use animal charcoal.

Q. But you didn't weigh your caffeine until after you had gotten it into a pure state?

A. I did not weigh the caffeine which I purified at all, I determined the amount of the caffeine by the Gonberg method.

Q. Where was it you put the animal charcoal in combination with it?

A. I used it, in de-colorizing the caffeine which I simply wanted to have as caffeine, but I did not use the animal charcoal in the quantitive determination of the amount.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH;

Q. Explain in detail exactly when you used that animal charcoal.

A. Why, it was permissible in one case and not in the other.

Q. Well, explain just what you did.

A. I have already stated ——

The Court: (Interrupting.) It seems the witness has been very specific on that point, and it is not necessary to repeat it, he has said it twice.

BY MR. HIRSCH:

Q. Doctor, was it the same sample as you used the animal charcoal on that you had already determined from the qualitative point of view how much the caffeine weighed?

A. It was the same sample, exactly the same sample of the Coca-Cola syrup, but it was a different portion of that sample that was used to obtain the caffeine in the pure state so as to say it was present, and the proportions used to determine the amount of the caffeine.

Q. These peculiar tannins you refer to, are they generally known throughout the vegetable kingdom?

A. No, sir.

Q. From your examination of cola, is there any source, taking into consideration all the tests you made, from which this peculiar tannin could be obtained except that from the coca leaf?

Mr. Miller: I object to that and also to the answer preceding, because the process has not been disclosed — only as it has been admitted in evidence that there was any proportion from the coca leaf in this mixture — we have had no opportunity to cross-examine him on that point — I mean to say, to test the correctness of his statements on that point.

Mr. Sizer: (Interrupting.) That is not based on his examination as to factory. The question was now, as to whether or not the tannin he found by analysis that he made could have been obtained from any other source than

the cola.

The Court: I understand that he has given his opinion based on his knowledge acquired at the factory, and not purely on results.

The Witness: I was questioned as to the possibility of determining the amount, the relative amount of tannin from different sources, and I said that in order to do that I did take into account what I saw at Maywood and what I saw at Atlanta, but as regards the identification simply of the tannin, it was not based upon that. It was a question as qualitative as distinguished from quantitive analyses. In my determination whether this peculiar tannin in Merchandise No. 5, I got exactly the same reactions from the extract Merchandise No. 5, that I got from the infusion of the coca leaves themselves.

Mr. Miller: I move to exclude the witness's answer because it gives purely the qualitative rather than quantitive feature of the case. He distinctly stated but for this inspection at the factory, he could not have told as to the quantity that was there.

Mr. Hirsch: We admit that, that is as to the quantity, we also say he could tell it was there or derived from the coca leaf, not as to quantity but that certain kind of peculiar tannin was there.

BY MR. HIRSCH:

Q. I will ask you this question. Could that peculiar tannin have been derived from any other source?

Mr. Miller: I object to that because he has distinctly stated he did not know in case because there were a great many leaves which he did not know about which might bear tannin. I mean in his cross-examination.

The Court: That is a matter going to the weight of the testimony, and of the weight of the opinion.

Mr. Miller: My exception before that has not been ruled on.

The Court: I understand the exception and am thinking about it, Mr. Miller.

BY MR. HIRSCH:

Q. Could this peculiar tannin in the three separate tests you have made been derived from any other source except the coca leaf?

A. Not that I know of from my own observation and from the general literature on the subject.

The Court: Is there any way by which you can tell or could tell whether this peculiar tannin you speak of from the coca was present in any particular degree or partic-

ular amount apart from your knowledge obtained from the factory—is there any way you could tell how much of it was present strictly from your analysis?

The Witness: Only very approximately; for instance, comparing the depth of the color, not the character, produced by contact with salts of iron.

The Court: If this witness is prepared by eliminating what he saw at the factory, to express his opinion as a scientific expert as to the relative amount of the derivative from the coca leaf that was in that mixture, he may do so, provided he will put a quantitive basis on it so we can tell something about it.

The Witness: I would not only answer that by saying there was a very considerable amount, but how much numerically, could not say.

Mr. Miller: I object to that.

The Court: I will not put the question to him; you may ask him whether or not he can give any quantitive basis that would afford any reasonable basis on which we can rely, you can ask him.

BY MR. HIRSCH:

Q. What do you mean by considerable amount?

A. Well, I mean that the tannin-like material which I extracted from the Coca-Cola syrup by shaking it up with acetic ether, gave me the depth of the color in salt of iron which indicates there must have been a considerable proportion of it, but what proportion I could not possibly say.

Q. Could you approximate it, Doctor?

A. No, sir; not numerically, yet I could say that the larger part of what was present must have been of that peculiar character.

The Court: I will overrule the exception.

Mr. Miller: I will ask you to state why?

The Witness: Because of the influence of the other tannings which you refer to.

BY MR. MILLER:

Q. I ask you then what proportion of these tannins, extractive matters, caramel, coloring, and so forth, was glycerine?

A. That I can't tell you.

Q. What proportion of it was caramel?

A. I can't tell you that.

Q. What did you intend by "and so forth" to convey, what does that intend to cover?

A. What is commonly called extractive matter. The

term extractive term merely means all those organic substances which have been extracted in active solutions which are not referable to definite analysis, an indifinite term intended to apply to indefinite substances.

Q. And after that indifinite amount of those extractive matters was accounted for, and the caramel was accounted for, and the glycerine was accounted for, then the remainder of this 3.55 per cent was what you term tannin or tannin extract?

A. Yes, sir.

Q. And you don't know, as you stated in your cross-examination before, of your own knowledge, whether that was from wine, from cola or from coca?

A. I said I could not determine the amounts.

Q. Approximately what?

A. I said the greater portion must have been derived from the coca leaf.

Q. But what amount you do not know?

A. No, sir; not numerically.

Q. And that opinion was based on the assumption that you saw the coca leaf being treated at Dr. Schaeffer's factory at Maywood, and you took that as a basis and took that into consideration in making your statement?

A. No, sir; not in answering the question I was asked last. I say it would have to be taken into account if there were to be any actual numerical determination of the relative amount of tannin.

Q. Then I understand you to say there is no method by which you can determine what proportion of this three and fifty-five hundredths was composed of tannin or tannin derivatives?

A. Well, that could be approximated, but I did not make a determination of the glycerine and other substances present, and therefore I could not know what amount to subtract from the three and fifty-five hundredths.

Q. Are you or not prepared to give anything like a definite opinion as to that?

A. No, sir. In order to avoid confusion, I will let it be understood in there that the greater part of the tannic acid derived from the coca leaves, I meant the greater part of the tannic substances extracted by acetic ether—I didn't mean the greater part of three and fifty-five hundredths which includes the other ingredients.

Q. Can you give us approximately the proportion of the three and fifty-five hundredths which was composed of tannin alone?

A. No, sir; I cannot.

Q. You can't give us the proportion that was composed of tannin, but whatever that proportion was, you think it was a greater amount of that.

A. Of the tannin.

Q. So that might have been due to the tannin from the coca, the extractive matter from the coca?

A. Yes, sir.

Q. But there are a number of leaves which produce like extracts?

A. Yes, sir.

Mr. Miller: Now, I move to exclude all the evidence on that point, because it is indifinite, he does not undertake to give anything approximate. He even says he is not prepared to do so.

The Court: I think that goes to the weight of it, and not to its admissibility, and I overrule your exception.

Mr. Miller: We except.

BY MR. MILLER:

Q. Can you approximate the amount of caramel that is contained in that three and fifty-five hundredths per cent.?

A. I made no attempt to determine the caramel quantity.

Q. You made no attempt to separate then, any substances that are included under the tannin and extractive matter, the caramel, the glycerine, and so forth.

A. No, sir.

Q. You do not undertake to say what proportion of the whole was derived from wine?

A. No, sir.

Q. Nor Kola?

A. No, sir; subject to the limitations by the former answer.

(Witness excused.)

CHARLES E. CASPARI,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. HIRSCH:

Q. What is your name and occupation?

A. Charles E. Caspari, chemist.

Q. How long have you been so engaged?

A. For the last ten years — eleven years.

Q. What particular preparation have you had in this line of business?

A. Graduate of John Hopkins, Baccalaureate and Ph. D.

Q. What experience have you had in the analytical line?

A. I have been engaged in that ever since graduation.

Q. Have you been connected with any institution of learning?

A. Chair of Chemistry in the St. Louis College of Pharmacy.

Q. Have you had any particular experience in the examination of food products?

A. Yes, sir.

Q. I will ask you to state if you made an analysis of Coca-Cola syrup.

A. I did.

Q. How many samples?

A. Two.

Q. From where were they obtained?

A. One of these samples I bought at a drug store in St. Louis and the other was sent me from Chattanooga by W. H. Foster.

Q. State the results of this analysis.

A. I found, so far as caffeine content is concerned, 21/100ths of 1 per cent. in both samples.

Q. How much would that be in an ounce of the syrup, in grains?

A. Of the samples I worked with the specific gravity with 1.257, and it would amount to 1.21 grains per fluid ounce.

Q. Have you made a determination and if so when and how, of the quantities of caffeine that appear in tea and coffee ordinarily served in restaurants, hotels, etc.?

A. Yes, sir.

Q. Please give us the result of that investigation.

Mr. Miller: It is not necessary, I suppose, for me to reserve objections to this same line that I have heretofore made.

The Court: It may be considered it is noted.

A. I have examined ten cups of coffee for their caffeine content, which I procured in Chattanooga, and, if I may be allowed to refer to my notes, I will give the results.

BY MR. HIRSCH:

Q. State the dates when that was done.

A. The samples were taken here in the month of November, 1910, and the analyses were made between then and Christmas.

Q. Give the places in each case.

A. It was a cup of coffee served by various restaurants and cafes. I did not undertake to determine the volume

of coffee or of the cup in which it was contained.

No. 1 came from Bowers' restaurant, Ninth near Market, and contained in the cup of coffee 1.56 grains of caffeine.

The Court: Was that black coffee or coffee with milk in it?

The Witness: Black Coffee. None of these had milk in them.

The Court: You just asked for a cup of coffee?

The Witness: Yes, sir; and they offered me cream but I did not take the cream.

The Court: Was the coffee poured out or did you pour it out?

A. They brought me a cup of black coffee.

The Court: But did you call for a cup of black coffee as distinguished from a cup of coffee with cream?

The Witness: I just called for a cup of coffee.

No. 2 was from Freeland's Lunch Room, 113 West Ninth street, and contained 2.45 grains of caffeine.

No. 3, the Grand Ocean Cafe & Grill, 832 Market street, contained 1.25 grains of caffeine.

No. 4 New York Cafe, Market near Fourth, 2.93 grains of caffeine.

No. 5, United States Cafe, 829 Market street, and contained 1.53 grains of caffeine.

No. 6, The Hotel Patten, and contained 1.78 grains of caffeine.

No. 7, Read House, dining room opposite Union Station, 1.96 grains of caffeine.

No. 8, Union Station Lunch Room, 1.95 grains of caffeine.

No. 9, Ellis Lunch Room, Market near Ninth, 1.26 grains of caffeine.

No. 10, Sprague's Cafe, Market between Seventh and Eighth, 2.02 grains of caffeine.

The average of these was 1.87 grains of caffeine per cup.

Q. Have you seen Coca-Cola manufactured?

A. Yes, sir.

Q. Where?

A. Atlanta.

Q. Where was it being manufactured at the time you made your observation?

A. I do not know the exact location so far as the names of the streets, but it was a building at some distance removed from the Piedmont Hotel where I was stopping. Two floors were devoted to manufacturing and the floors above that were used for office purposes. That was the building in which Howard Candler had his office.

Q. Is it the same building that has been described by

Howard Candler?

A. Yes, sir.

Q. Did you go through this factory?

A. Yes, sir.

Q. What condition did you find the factory in?

Mr. Miller: I object to that.

BY MR. HIRSCH:

Q. Describe it.

Mr. Miller: I object to that.

BY MR. HIRSCH:

Q. When did you go through that?

Mr. Miller: I object to that?

The Court: Why?

Mr. Miller: It is too indefinite.

BY MR. HIRSCH:

Q. When did you go through there?

A. The latter part of November or the early part of December, 1909.

Q. Now, I will ask you to describe the condition of the building as it pertained to manufacture.

Mr. Miller: I object to the condition then existing. It was subsequent to this suit. It might have been cleaned up after that. I do not object to the construction of the building but I object to the sanitary conditions he ofnud with reference to the refuse matter.

The Court: There have been no complaints filed by the Government as to any lack of sanitary features, that was a month or two after and sufficiently near to make it competent and I overrule the objection.

Mr. Miller: Note an exception.

A. I noted nothing that I would consider unsanitary in any way.

Mr. Miller: We object to that.

The Court: I sustain an objection to that. The witness can just state the facts.

The Witness: The facts as to whether it was sanitary or unsanitary?

The Court: Just what you saw.

The Witness: I saw these tanks that Mr. Candler described and I saw a man working at that time around there, I could not be positive whether it was a man who testified yesterday, whether he was employed there or not, but he was dressed — certainly not in his undershirt. There was no evidence of tobacco. The platform upon which this kettle rests was clean. I went down into the basement—I

didn't go up to look into the cooling tanks which were suspended, but I did see the floor of the basement and the mixing tanks and they were clean.

BY MR. HIRSCH:

Q. You heard Howard Candler describe the way in which Coca-Cola was manufactured. Was that the way you saw it or not?

A. That is the way I saw it.

Q. Have you seen the manufacture of Merchandise No. 5?

A. I have.

Q. Do you know the amount of coca leaves used in the manufacture of No. 5 and of cola nuts?

A. I do.

Q. Will you state the amount?

A. 380 pounds of coca leaves used and 125 pounds of cola nuts to make 900 gallons of Merchandise No. 5.

Q. Have you seen this Merchandise No. 5 used in the manufacture of Coca-Cola syrup?

A. Yes, sir.

Q. Where was this that you saw this manufacture of Merchandise No. 5?

A. Maywood, New Jersey.

Q. Did you take any samples at Maywood, New Jersey?

A. Yes, sir; after I finished watching the process by which No. 5 was manufactured, samples were taken by me and labels were fastened on it with the date and my initials and they were sealed up with car seals and sent to several different chemists, some were sent to Dr. Vaughn and some to Dr. Wesener, and Dr. Mallet and Dr. Satler, and myself.

Q. Did you receive any samples from Howard Candler?

A. I received two samples from Howard Candler.

Q. What did you do with those samples?

A. I examined them to see if there was any difference between them.

Q. Did you find any difference?

A. I found a difference in flavor.

Q. Could you obtain the entire amount of caffeine from a substance containing caffeine by the use of animal charcoal?

A. You mean if the solution of caffeine were passed through charcoal — I could not.

Q. Did you make an analysis of Merchandise No. 5?

A. I made an analysis of Merchandise No. 5 and determined the caffeine in it. I detected qualitatively the presence of tannin and also of chlorophyll.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. When did you go to Maywood, New Jersey, for the purpose of going through the factory?

A. I do not remember the exact date, but I can tell you within a week or two. It was the latter part of March, 1910, or the first part of April.

Q. At whose instance?

A. At the instance of Mr. Hirsch:

Q. Of counsel for the Coca-Cola Company?

A. Yes, sir.

Q. And you were sent there by that Company?

A. Yes, sir.

Q. Your Company manufactures caffeine for the Coca-Cola Company

A. My company?

Q. Yes.

A. No, sir; I am not associated with any company.

Q. Are you not consulting chemist or associated with some one who supplies caffeine to the Coca-Cola Company?

A. No, sir.

Q. Haven't you ever been?

A. Never. I want to amend that answer to this extent, that I have never been connected with them as an employe. They have consulted me.

Q. You are consulting chemist of the Monosanto Chemical Works?

A. I am not.

Q. You were?

A. You will have to define what you mean by consulting chemist before I answer you yes or no.

Q. Were you consulting chemist of that company — you know what that is?

A. They have consulted me, yes, on one or two occasions, but not as a general thing.

Q. And that company supplies caffeine to the Coca-Cola Company?

A. That company supplies caffeine to the Coca-Cola Company.

Q. Did you appear before the Congressional Committee or the Board of Food & Drug Inspection, on behalf of the Monosanto Chemical Works?

A. I appeared before the Food & Drug Committee on behalf of the Montasanto Chemical Works and also on behalf of a great many other clients as well.

Q. Ah, a great many other clients. That is what I wanted to find out. And this is one of your clients?

A. Yes, sir.

Q. How came you to go to Atlanta — what was your object in going there?

A. My object in going there was to consult with Judge Candler in connection with this case.

Q. That was in November or December of 1909?

A. It was in November or December of 1909?

Q. That is very much colder weather down there than it is in September or October?

A. I suppose so.

Q. You didn't see anybody in the factory just wearing an undershirt at that time?

A. No, sir.

Q. What was this process of making Merchandise No. 5 which you say you saw — what kind of process were the leaves put through?

A. I promised Dr. Schaeffer, the same as Dr. Mallet did, that I would not divulge anything I saw in the way of process of the preparation of Merchandise No. 5.

Mr. Hirsch: We will get permission from Dr. Schaeffer.

The Court: That is all right, but if any more witnesses are put on the stand who won't testify what they saw at Dr. Schaeffer's establishment, they will not be permitted to testify.

Mr. Hirsch: We will put on no more. If the witness will do it himself, we are perfectly satisfied.

The Court: You may wait.

Mr. Miller: Conducting my cross-examination in the order in which they took up the matter, that is the next point in the cross-examination.

The Court: He may be put back on that, but if there is anything else, you can go on.

Mr. Miller: But that is the way they conducted the examination.

The Court: Oh but you go on.

Mr. Hirsch: If Dr. Caspari is willing to do so, I prefer that he go on and state the process. I would just as soon have him state it in the court room as to give it to the government chemist and counsel. It will save time if he goes on.

The Witness: That puts me in a rather embarrassing position with respect to Dr. Schaeffer.

Mr. Sizer: The court requires you.

The Witness: I signed an agreement that I would not divulge that process.

The Court: I will let the witness wait. I understand the Doctor is in the city and he can have an opportunity to talk with him, but witnesses should not come into the court

unless they are prepared to answer.

Mr. Sizer: We had these witnesses go there not for the purpose of ascertaining the exact process but simply to be able to testify that those substances were in the production of that product. We did not suppose it would be necessary to go into the process, and we are in no manner responsible for the contract that Dr. Schaeffer required these witnesses to sign. We want to get their testimony and we are going to insist upon them answering, because we do not want their testimony to be stricken out if we can help it.

The Court: Proceed.

BY MR. MILLER:

Q. What size samples were those that you received from Atlanta?

A. About two fluid ounces each.

Q. How did you receive them?

A. They came by registered mail.

Q. Do you know how long they had arrived in St. Louis before you received them?

A. I do not. I do not remember the post-mark.

Q. You travel in and out of St. Louis, go about a good deal?

A. A good deal, yes.

Q. Did you receive any letter or letters in connection with the transmission?

A. Yes, sir.

Q. Have you any of those?

A. I have not them with me. I have them at the hotel.

Q. Would you produce them to counsel? I do not want to have them filed unless I find something in them that is relevant to the case.

A. Yes, sir.

Q. I would like to have an opportunity of inspecting them before your testimony is closed.

A. All right.

Q. Now, you do not, of course, know whether or not the mixture sent you was the genuine Coca-Cola syrup or not in those boxes?

A. No, sir; I did not analyze it chemically.

Q. Did you or not analyze this Merchandise No. 5 chemically?

A. Yes, sir, I did.

Q. What was your analysis of that?

A. I made a quantitive determination only of the caffeine in it and the chlorophyll. The tannins were determined qualitatively.

Q. Chlorophyll is a substance common to a number of substances — practically all vegetation, is it not?

A. All green vegetation.

Q. So that did not particularly prove anything, to find chlorophyll, you find that in various kinds of leaves?

A. It proved there was some leaf present.

Q. That is chlorophyll?

A. Yes, sir.

Q. You determined that only qualitatively and not quantitively.

A. Only qualitatively.

Q. What was the other substance you found in it besides chlorophyll?

A. A tannic-like substance that Dr. Mallet spoke of.

Q. What quantity of that did you find?

A. I said I did not determine that quantitively.

Q. Why didn't you determine that?

A. What is that?

Q. Why didn't you — why is it you did not determine that?

A. Because it could not be determined quantitively.

Q. Why not?

A. Because I did not know how.

Q. Then you simply found a substance there that was tannin or a tannin derivative and you don't know how to determine how much there was of it?

A. That is a fact, and further, that tannin-like substance was the same kind of a substance as in coca leaf and some in Coca-Cola syrup.

Q. How do you know that?

A. Because all three treated in the same way responded to the same reaction.

Q. Tell your treatment.

A. In the first place an infusion was made of the coca leaf and that served as a material on which the test was made for the coca leaf.

Q. But you have not given what you did, you simply say an infusion.

A. I will cover it if you will let me finish. In the case of Merchandise No. 5, it was extracted, first evaporated down, concentrated, to get rid of the alcohol present, and then diluted with water and extracted with acetic ether.

Q. How much water was put in?

A. About enough to bring it back to the original volume and then extracted with acetic ether and that acetic ether was also drawn out and evaporated to dryness on a water bath, and that residue treated with water and filtered and that solution was the solution that was tested in the case of Merchandise No. 5 for the tannin-like substances.

Now, in the case of Coca-Cola syrup the same treatment

was resorted to as in the case of Merchandise No. 5, that is, the tannin-like substances was brought into aqueous solution after having been extracted from the Coca-Cola syrup by acetic ether. So we have the infusion of the Coca leaf, solution, the solution obtained by the acetic ether extracted from Merchandise No. 5, and the solution obtained by acetic ether from Coca-Cola syrup. The separate portion of each of these was treated with ferric chloride and potassium serri cyanide and ammonia, treated with lead acetate, treated with Schling's solution, a solution of caustic soda, a solution of gelatin, and treated with a solution of cinchonine and all reacted the same way, each reacted like the other.

Q. What did that prove to you, and how and why?

A. It proved to me there was a substance in all three of these liquids the infusion of coca leaves and the Merchandise No. 5 and the Coca-Cola syrup which was identical in that it responded in the same way to these reagents, and that substance was in tannin or a tannin derivative.

Q. Now, how could you know that was a tannin or a tannin derivative?

A. I do not know which it was.

Q. But how could you know it was either a tannin or a tannin derivative?

A. On account of its reaction with these reagents which were used specifically to determine the presence of the tannin.

Q. By these experiments given in detail, you determined that there was either a tannin or a tannin derivative in these three compositions to start with?

A. Yes, sir, and furthermore, the tannin that reacted to those reagents differed from any tannin that I know of, insofar especially as its reaction in gelatin solution and cinchonine sulphate is concerned.

Q. But you just stated, if I understood you, that you did not known how to determine or separate the tannin.

A. No, sir; I didn't say that. You are confusing the quantitive determination and the qualitative proofs of the presence of tannin. I said I did not know how to determine quantitively the amont of tannin.

Q. If you don't know how to determine quantitively, how do you know you didn't have something else in the quantity if you cannot isolate something, how you can tell that is the only thing.

A. I can tell a great many instances where you can qualitatively prove the presence of a thing and be unable to determine it quantitively.

Q. But if you cannot isolate a substance and put it to

itself, how you cannot tell there is some other substance mixed with it?

A. I can tell it by its reaction with certain agents even though other substances are mixed.

Q. If the other substances are easily assimilated and of like character?

A. I can give you an approprate example. In the case of balsam copaiba, and gurjin balsam. I can detect the presence qualitatively of gurjin balsam and balsam copaiba, but I cannot determine it quantitively.

Q. You are not to get me into that realm. My question is this, if you cannot isolate a substance so as to tell whether or not that is all the substance you have present, how sent, can you determine that is the substance you are treating?

A. If the substance is present and cannot be isolated, it is still possible to prove its presence without being able to say how much is present, by qualitative reaction.

Q. Then you cannot say that you do not say how much of any given substance was present in any of these analyses that were made?

A. Not of the tannin-like substance. I said that fifteen minutes ago.

Q. How is tannin affected by the evaporation of alcohol?

A. How is tannin affected by the evaporation of alcohol?

Q. Yes.

A. I do not know that it is affected at all, if the evaporation is carried on on the water bath.

Q. You do not think that tannin would be affected?

A. Not to interfer with its detection.

Q. Would it be affected so far as you know?

A. No.

Q. Did you devise the methods of analyses that you resorted to, or did you follow them from some one else?

A. Analyses for what?

Q. In the instances where you say you analyzed Coca-Cola syrup and Merchandise No. 5.

A. When I analyzed the Coca-Cola syrup, the method I used is practically the one that I worked out myself.

Q. That is your own method?

A. Practically.

Q. How about your analyses in the other instances?

A. In the Merchandise No. 5, the method to determine the caffeine was my own, and the method for determining the chlorophyll was gotten from a German book, Garrendurff's on plant analysis, and the tests for tannin were

submitted to Dr. Mallet. They were not mine.

Q. They were tests that Dr. Mallet suggested to you?

A. Yes, sir.

Q. That is the Dr. Mallet that testified in this case on behalf of the Coca-Cola Company?

A. Yes, sir.

Q. Where were you and Dr. Mallett's conferences held with respect to these analyses?

A. They were carried on by correspondence.

Q. Have you that correspondence?

A. I have not.

Q. Did you not retain it?

A. I have some of it but not all of it. As I remember it, the correspondence in connection with this tannin-like substance, in the first place —

Q. I don't want you to state the contents.

A. No, I am not, but I want to tell you how it came to be through correspondence and through what channels. I think Dr. Mallet sent Mr. Hirsch a memorandum of these tests and they were sent out by Mr. Hirsch to various chemists who were working on this problem.

Q. And you got one of those?

A. I got one of those memorandums.

Q. So that if you had never heard of Dr. Mallet's experimentation, or Dr. Schaeffer, you would not have known how to go about this.

A. That does not follow at all. If I hadn't had the methods that Dr. Mallet worked on, I would probably have looked it up as he did and gotten the same one.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What percent of alcohol did you find in No. 5?

A. I made two determinations and in one I found 16.2 and in the other 15.76 per cent.

Q. Was there anything else except coca leaves and cola nuts and alcohol used in the manufacture of Merchandise No. 5?

Mr. Miller: I object to that question without we are permitted to cross-examine.

The Court: There will be no further examination about that.

BY MR. HIRSCH:

Q. Did you think the test submitted by Dr. Mallet to ascertain the tannin in Merchandise No. 5 was a good one?

Mr. Miller: We object to that.

The Court: I think he is qualified to express an opinion on that.

Mr. Miller: My point is he said he did not know how to separate or isolate this tannin at all.

The Witness: I never admitted that.

Mr. Miller: He said he did not know how to do it at all and did not know now.

The Court: The exception is overruled.

The Witness: Yes, sir.

BY MR. MILLER:

Q. How much Coca-Cola syrup did you use in making the Coca-Cola test?

A. Fifty grams.

Q. That was a mixture that someone else sent you from Atlanta?

A. I made two analyses of Coca-Cola. I imagined you were referring to the one sent from Chattanoga.

Q. No, I am referring to the one sent you from Atlanta.

A. I did not analyze that for caffeine — a difference was detected between those two samples but each of which was about two fluid ounces in volume, and I detected a difference in flavor. The sample I analyzed was sent from Chattanooga by a man named Foster.

BY MR. MILLER:

Q. It was stated on yesterday that this witness received two bottles from Atlanta, one of Merchandise No. 5 and the other of Coca-Cola syrup.

Mr. Sizer: You are mistaken, if you will pardon me. Mr. Howard Candler said that he sent two bottles to Doctor Caspari, one of Coca-Cola syrup, the other of the ingredients of Coca-Cola syrup, omitting the Merchandise No. 5.

Mr. Miller: Take it that way, then. My examination of him with respect to the Coca-Cola syrup was upon the syrup that he analyzed, the Coca-Cola syrup which Howard Candler identified, and I object to any that has not been identified as Coca-Cola syrup.

Mr. Hirsch: As I understood the witness, he said that he received a sample from Chattanooga and bought one in the open market and those are the two he examined.

The Court: He stated that but Mr. Miller objects to the one from Chattanooga and you must connect that.

Mr. Miller: Did the witness state that he bought one in the open market?

The Court: Yes, he said he bought it and it was analyzed, and he got the same results as to caffeine.

Mr. Miller: Where did you buy this?

The Witness: St. Louis.

Mr. Miller: When was that?

The Witness: That was bought about in the month of April, 1909.

Mr. Miller: In April, 1909?

The Witness: Yes, sir.

Whereupon a recess was taken until 12:15 P. M. same day.

AFTER RECESS.

Court met pursuant to adjournment for recess at 12:15.

CLAIMANT'S EVIDENCE CONTINUED.

CHARLES E. CARPARI resumed the stand for further examination, testified:

BY MR. HIRSCH:

Q. Now you stated that you made an analysis of coca cola syrup by going to a drug store and purchasing some, and this took place in April, 1909?

A. April, 1909.

Q. And what was the purpose of this analysis?

A. A friend of mine asked me to analyze a glass of coca cola for him to tell him how much caffeine was in there.

Q. Were you in the employ of the Coca-Cola Company at that time?

A. No, sir.

Q. In no way?

A. No, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Are you familiar with the tannin that is found in the pilocarpus leaves?

A. You mean as distinguished from other tannins?

Q. Yes.

A. No.

Q. Are you familiar with the tannin found in the coca leaves?

A. I am familiar with these reactions I have mentioned this morning.

Q. What experience is that?

A. The experience I have outlined of examining these various samples for it.

Q. That is the extent of your experience?

A. Yes, sir.

Q. Are you familiar with the tannin in the belladona leaves?

A. Not distinctively from other tannins, no.

Q. Then your only experience in he determination of tannin has been the experiments which you have outlined this morning?

A. Yes, sir. My experience with the tannin in the coca leaves is in the analysis of the three samples I have made, whatever it is is in all three of them.

Q. So far as you know it might have come from the cola, it might have come from the pilocarpus or it might have come from belladonna?

A. Not from cola.

Q. Is there tannin in cola?

A. Yes, sir, but it will not react as tannin in making tests—

Q. How do you know it?

A. It does not respond to these reactions.

Q. Have you tried it?

A. Yes, sir.

Q. And when did you try it?

A. The same time as I started the other tests on Merchandise No. 5 and Coca-Cola syrup and eroxythoxlyn coca leaves.

Q. Now you said in this Coca-Cola syrup you had a mixture of coca and cola, and you say tannin is in each?

A. Yes sir.

Q. You did not separate the tannins?

A. No sir.

Q. Well, then, so far as you know it might be kola tannin you found?

A. No sir; infusion of kola nuts alone does not react as infusions of coca leaves does.

Q. And that is the only reason you have for saying that?

A. Yes sir.

Q. What are the specific actions for conducting or detecting I mean, these tannins?

A. As I enumerated them they are first, the fact they are present by lead acitate.

Q. That is common in all tannins?

A. Yes sir.

Q. All right?

A. And the reaction with ferrichloride salts.

Q. That is common to many?

A. Yes sir. And the ferricyannide reaction and akmonia—

Q. That is common to many?

A. Yes, and Fehling's solution.

Q. That is common to many?

A. Yes sir. The brown coloring with solution of caustic soda.

Q. That is common to many?

A. Yes.

A. And the reaction with a solution of gelatine and with a solution of cinchonius sulphate.

Q. And it is true that is common to many?

A. No, I don't think it is common to many.

Q. Is it common to any others?

A. Not that I know.

Q. That means you know of no others. This is the first experiment you made with respect to tannin?

A. Oh, no, not the first experiments, but the first time I have used these reactions with tannin from the coca leaves or cola of Merchandise No. 5.

Q. That is so far as you know that is not common to any others?

A. Yes sir.

Q. Now what other reactionary tests did you resort to aside from them, any?

A. No.

Mr. Hirsch: Is there any tannin you know of that is common to reaction of all tests?

The Witness: No sir.

BY MR. MILLER:

Q. They are common to all except this last one you enumerated, you admit that don't you?

A. No, all except the gelatine and cinchonium sulphate.

Q. That was the last one you mentioned?

A. Yes sir.

Q. And so far as you know there may be very many in that class ——

Q. You don't pretend or profess to be a specialist in that line?

A. I don't profess to be a specialist in tannin analysis.

Mr. Sizer: He was asked to bring a letter here and he said he would produce it.

Mr. Miller: Well if he has it let him hand it to me. If there is any thing I wish to bring out I will do so.

The Court: A note may be made by the stenographer that the letter was handed to counsel for the government.

Mr. Miller: I do not care to cross examine on it; it is a letter from Mr. Hirsch.

Mr. Sizer: Do you want to put it in evidence?

Mr. Miller: There isn't anything in it that is material to the case; I don't object to its going in.

The Court: Don't dispute about it. If either side wants it, it may be filed; otherwise not.

(Witness Excused)

J. F. JOHNSTON

The next witness called by claimant, of lawful age, first

duly sworn, testified:

DIRECT EXAMINATION

BY MR. HIRSCH:

Are you connected with the local Coca-Cola bottling works of Chattanooga?

A. Yes, I am proprietor of it.

Q. Were you proprietor of it back in October 1909 at the time this seizure took place?

A. Yes, sir.

Q. Did you send any samples, Mr. Johnston, out of the forty barrels and twenty kegs seized in this case to any person and if so state the persons to whom you sent the samples and the dates?

A. I did send quite a number of samples. I will have to refer to the receipts to recall about them.

Q. Well, refer to the receipts that you have—what receipts do you refer to?

A. Express receipts.

Q. The receipts that were given you by the agents of the Express Company?

A. Yes sir. On 11-29-09 I sent one to S. P. Sadtler, Philadelphia; 12—2—09 one to J. A. Wesener, Chicago, Ill. December the 7th 1909, one to Dr. Walter S. Haines, Chicago, Ill. January, I believe the 14th, I sent two to C. F. Chandler New York; on the 19th of January 1910 I sent two to R. W. Emerson, Boston, and on 11-22-09 I sent one to Caspari, C. E. St. Louis, and one to W. S. Haines, Chicago; one to L. Vielox, St. Louis.

Mr. Miller: Back there you said one to Chicago?

The Witness: Another one in addition to that one; another one to J. A. Wesener, Chicago and one to V. C. Vaughn, Ann Arbor Michigan.

BY MR. SIZER:

Q. Were those samples Mr. Johnston all drawn out by you personally?

A. Yes sir, they were selected by me.

Q. Were they all of the bottler's syrup or fountain syrup or some of each?

A. Some of each; I mentioned on the package which it was whether bottler's or fountain syrup.

Q. So that each of the packages would bear a mark indicating whether it contained the bottler's or fountain syrup?

A. I so marked it.

Q. How long have you been conducting this bottling works here Mr. Johnston?

A. I have owned it several years; I don't remember

when I did buy it, 8 or 9 years ago.

Q. Have you gone over your list of sales in order to determine whether or not the amount of the bottled product that is sold varies at different seasons of the year?

A. Very materially, yes, I have.

Q. About what is the variation between the summer and winter months, which months is the greatest?

A. I never averaged the entire summer months as against the winter months. I have taken the warmest month in the summer as against the coldest month in the winter.

Q. You may state in that way what is the variation between the winter and the summer months?

A. The sales decease from 60 to 70 per cent—

Q. How do you mean?

A. The sales for June or July or August, I don't recall which month I used, but I used the warmest month as against January and Febuary, it was from 59 to 72 per cent in 7 or 8 years.

Q. Which do you mean it will average the greatest?

A. It is the highest in the summer and falls at that rate against the winter month.

Q. What do you say then the sales in the winter months are as compared to the summer months, how much less?

A. From 79 to 51; two per cent if I remember correctly.

CROSS-EXAMINATION
BY MR. MILLER:

Q. Now, this product that was seized, Mr. Johnston, was received from the railroad company, the Western and Atlantic Railroad in unbroken packages?

A. Yes sir.

Q. And after it was received and before it was broken Inspector Lynch opened one package?

A. He did not— it was broken then; we had broken a barrel and I think we had used a barrel or half of it.

Q. You had not made any change at any rate in the composition of the mixture?

A. No sir.

Q. You gave him just what was sent to you?

A. Yes, he got just what was seized of course, and we took out of that and sent to these names I gave.

Q. And the remainder of the packages that were seized were unbroken?

A. If I remember correctly they were unbroken.

Q. And they came in from the Western and Atlantic road?

A. They were unbroken until we went into them; we took some samples out if I remember.

Q. These packages came in to you in the usual course of shipment?

A. Yes sir

Q. From Atlanta to Chattanooga?

A. Yes sir.

Q. Over the Western and Atlantic Railroad?

A. I think so; sometimes they come over the Southern.

The Court: There is no question raised on that, the answer admits they were received and as interstate—

Mr. Miller: Not in the language of the statute.

The Court: He admits they were received in unbroken packages; they admit it.

Mr. Hirsch: We are not trying to disprove this fact by the witness.

Mr. Miller: I am trying to prove it by him.

The Court: It is already proven. I think it is admitted I think you proved it by Mr. Dobbs.

BY MR. MILLER:

Q. How much of this mixture was sent to Dr. Sadtler Mr. Johnston?

A. From this receipt that I hold it was one gallon.

Q. Transmitted how?

A. By express from here over the Southern Express line.

Q. How much was sent to J. A. Wesener?

A. I have two receipts.

Q. The first one?

A. The first one, one gallon.

Q. And sent how?

A. By express.

Q. Was this sample that was sent to Dr. Sadtler from bottlers syrup?

A. I have analysis marked on the sample—I mean the kinds on these receipts, that is the only record I have.

Q. And you don't know which was the bottlers syrup and which was the fountain syrup?

A. No, I don't know now.

Q. How much did you send to Dr. Haines?

A. Dr. Walter S. Haines, one gallon in one place and I think—

Q. Was that sent by express?

A. Yes, in both instances. I have two packages sent to him.

Q. A second one was one gallon also?

A. Yes, sir.

Q. What was the occasion for sending but one sample to—

A. I was told to send them.

Q. You don't know the reason for sending the two samples?

A. I can give the reason but I don't know that I was told.

Q. You sent how much to Mr. Chandler?

The Court: Were they all one gallon packages?

The Witness: Yes, sir.

BY MR. MILLER:

Q. And all sent by express?

A. Yes sir.

Mr. Miller: With the exhibit when it arrives which we will ask the witness to file when it comes, we are through with him.

Mr. Sizer: What was that?

Mr. Miller: This exhibit he is to file; I have not seen it yet.

(Witness excused.)

THOMAS G. MORRIS,

the next witness called by claimant, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION

BY MR. HIRSCH:

Q. What is your name?

A. Thomas G. Morris.

Q. Where do you live Mr. Morris?

A. Philadelphia, Pa.

Q. What is your occupation?

A. Magistrate of Court No. 19, Philadelphia, Pa.

Q. How long have you held that position?

A. Several years.

Q. Mr. Morris, I will ask you to state whether or not you know Edwin H. Cory?

A. I do.

Q. When did you first meet Edwin H. Cory?

A. Fifteen years ago.

Q. Do you know his family?

A. Personally.

Q. Judge Morris, has Edwin H. Cory ever been in your court?

A. Yes sir.

Q. On what charge, under what circumstances?

A. On a warrent issued by me on affidavit of his brother.

Mr. Miller: I object—

BY MR. HIRSCH:

Q. Have you the warrant with you?

A. Yes sir.

Q. I will get you to produce it?

A. All right.

Q. Did Edwin H. Cory appear in your court in response to this warrant?

A. He was brought there by my constable.

Q. In response to this warrant?

A. Yes sir.

Mr. Miller: Is that the original paper?

The Witness: Yes sir.

Mr. Miller: Let me see it.

BY MR. HIRSCH:

Q. What transpired after Cory was brought to your court?

A. His brother and wife appeared there and brought their child with them and preferred charges sustained in the affidavit.

Q. Anything else Judge Morris?

Mr. Miller: The government was not present or represented at that time, that is incompetent, that is clearly incompetent, and I object to it.

The Court: The objection is sustained, that is not the way to impeach the witness, if that is the purpose of it.

Mr. Sizer: This is a witness whose testimony has been taken on the part of the government.

The Court: They might ask him on cross-examination

Mr. Sizer: The purpose of this is to show what was the matter with the man.

The Court: He may state that; he could not state what complaint his wife and brother made against him; if this witness knows what was the matter with him he can state.

BY MR. HIRSCH:

Q. Can you state what complaint was made against him?

The Court: You can't impeach a witness that way. If this witness knows what he was suffering from he may state it, if he knows of his own knowledge, if that is what you mean.

Mr. Sizer: I want to offer the warrant in evidence. This warrant shows that at that time he was charged with the crime of—

The Court (Interupting) That is'nt competent.

Mr. Sizer: But we want to prove it for the sake of getting the benefit of it.

The Court: I exclude it if that is the purpose for which it is offered. If you had asked that witness on cross-examination you would have been bound by his answer.

BY MR. HIRSCH:

Q. How long do you say you have known Edwin H. Cory?

A. Fifteen years.

Q. Could you state what his general reputation was in the community where he lived—

Mr. Miller: I object to that.

The Court: You may ask the witness if he knows the witness' general reputation in the community for truth and varacity, and if he knows it he may answer.

BY MR. HIRSCH:

Q. Do you know his reputation for truth and varacity in the community?

A. The only way I can answer that question is to state it was looked upon to be somewhat foolish.

The Court: That is not the question. You were asked if you knew his general reputation for truth and veracity?

The Witness: His general reputation is looked upon as good.

BY MR. HIRSCH:

Q. Do you know what became of Cory after he left your court?

A. Yes, sir.

Mr. Miller: I object to that.

The Witness: I do.

Mr. Hirsch: Where he was taken?

Mr. Miller: I object.

The Court: This proceeding was not in the nature of an inquisition of lunacy or any thing of that sort.

Mr. Hirsch: No, your Honor.

The Court: I think in that form the question is objectionable.

Mr. Sizer: I think your Honor might understand more about it if you will look at the warrant.

The Court: Let me look at it. (Examining warrant) The exception is sustained.

Mr. Hirsch: The only purpose of this question was that Cory testified he was taken to the Philadelphia hospital for the insane I want to show that this was the same Cory and he arrived on the same day.

The Court: If the witness knows he was insane—

Mr. Hirsch: I want to connect it up as being the same Cory is all. I want to prove that link in the chain.

Mr. Sizer: That this man Cory was sent to the hospital by this magistrate on a certain date.

Mr. Miller: He admits he was sent to the hospital.

The Court: Then that is admitted.

Mr. Sizer: It is shown he was sent to the hospital and I want to show by this witness he sent this particular man there in order to identify the man as the same man.

The Court: You admit he was sent to the hospital.

Mr. Miller: That is he went to the hospital for treatment just as the man said he did.

The Court: On a certain date.

Mr. Sizer: That is all right.

(The warrant offered in evidence but excluded was as follows:

City of Philadelphia, The Commonwealth of Pennsylvania.

To any officer or constable of said City, Greeting:

You are hereby commanded to take the body of Edwin H. Cory 1646 N. 29th if he be found in the said City, and bring him before me, Thomas G. Morris, Magistrate of Court No. 19 of the City of Philadelphia to answer the Commonwealth of Pennsylvania of a charge founded on the oath of C. Oliver Cory, sodomy, and for so doing this shall be your warrant. In witness thereof, I have hereunto set my hand and affixed the official seal of the said court the 13th day of July A. D. 1910.

THOMAS G. MORRIS,
Magistrate of Court No. 19.

Office 2304 Ridge Avenue. }
City of Philadelphia. } ss.

Personally appeared before me, the subscriber, Thomas G. Morris, Magistrate of Court No. 19 of the said City, C. Oliver Cory who being duly sworn, according to law doth depose and say, that at and within the said City that Edwin H. Cory has committed sodomy upon the minor child of the deponent within the past two years in the county of Philadelphia, against the peace and dignity of the commonwealth of Pennsylvania, and further deponent saith not.

C. Oliver Corry,
1721 N. 20th St.

Sworn and subscribed to before me
this 13th day of July A. D.
1910.
Thomas G. Morris,
Magistrate of Court No. 19.)

(Witness Excused)

J. F. JOHNSTON

recalled for further examination, testified as follows:

BY MR. MILLER:

Q. Mr. Johnston, as a member, or one of the members of the Coca-Cola bottling Company, of Chattanooga I will ask you whether or not you send out your product in that character of bottle?

A. That is one of the bottles; we have bottles made at two different factories, and that is the bottle made at a local factory.

Q. Now examine the words Coca Cola on that bottle and state if any hyphen between the words "Coca and Cola"?

A. No, sir.

Q. Now examine the top of bottle and state if any hyphen between those words there?

A. No sir, not at the present; there was last year and some time before.

Q. But none on it at present?

A. No sir.

Mr. Miller: We file this bottle in evidence as Exhibit No. 1 to Mr. Johnston's deposition or testimony.

RE-EXAMINATION
BY MR. HIRSCH:

Q. Mr. Johnston, are these bottles made by your company or by the Coca-Cola Company of Atlanta?

A. Made on our order.

Q. Has the Coca-Cola Company of Atlanta any thing to do with the manufacture of them?

A. No sir.

Mr. Sizer: I move to exclude that exhibit because it is not connected with the claimant Coca Cola Company.

The Court: It is over-ruled. I will state the reason of that holding, it bears on the question of distinctive use—of course it is a question of fact as to how it may have been sold, but I think it has some bearing on that question.

A. SHERMAN CLOUTING,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. What is your name?

A. A. Sherman Clouting.

Q. What is your occupation?

A. A physician.

Q. How long have you been a physician?

A. I Graduated at the Jefferson Medical College in

the year 1896.

Q. Have you been practicing since?

A. Practically so. I could not tell you just exactly the date that I took the State Board examination but it was within a year afterward I judge, somewhere about that.

Q. What experience have you had in the medical profession?

A. I practice general medicine and along with that I have worked on nervous and mental diseases for a number of years. I was physician for the Alms House.

The Court: Do you want to examine this witness as to that other witness?

Mr. Hirsch: Yes.

BY MR. HIRSCH:

Q. What hospital are you connected with?

A. The Philadelphia General Hospital.

Q. How long have you been connected with that?

A. I think about a little over three years.

Q. What is your connection with the hospital?

A. I am Examiner for the Insane there.

Q. Do you know Edwin H. Cory?

A. I examined him on or about July 16, 1910.

Q. At the time you examined Edwin H. Cory, did you know anything about the case in which you are now testifying?

A. No, sir.

Q. In order to make the examination of Cory and similar cases, is it necessary to get a statement from the witness of the history, etc.?

A. Yes, sir; we examine each patient by the bedside, each patient as they come into the ward.

Q. Will you state in detail the examination you made of Corry?

Mr. Miller: I object to any communication that took place between him and Cory.

The Court: The objection is sustained.

Mr. Sizer: I submit that the statements of the patient to the physician may be proved independently. Statements to a physician of the location and nature of the symptoms made for the purpose of diagnosis and treatment are not only received as to the existence of a habitual condition as stated, but in many jurisdictions if made to a medical attendant they are of more weight than if made to other persons, statements in connection with a diagnosis; but statements as to an injury or the manner in which an injury was inflicted, are not.

The Court: That is true if you are only trying to prove

that he was insane at the time he was examined, but you are offering that to contradict some of his statements.

Mr. Sizer: We offer that to show what was really the matter with that man at the time he claims to have been suffering from the effects of Coca-Cola.

The Court: You are really trying to contradict the statements he made and I think you cannot do that. You should have laid the basis for contradiction by asking that witness.

Mr. Sizer: We did not know anything about it at that time. We want to except to your ruling.

BY MR. HIRSCH:

Q. Did you make an examination of Edwin H. Cory?

A. Yes, sir.

Q. From the examination you made of Edwin H. Cory could you tell from what he was suffering?

A. Insane at the time I examined him.

Q. What were his symptoms?

A. He was depressed, apathetic and he heard distant music in his ears, he said.

Mr. Miller: Just tell us what you saw, not what he said — just what you know.

A. I may as well say that anyone's examination and observation of a person amounts to little unless you can tell what he says:

BY MR. HIRSCH:

Q. Tell the results, not what he said.

The Court: He may tell any symptoms that this person gave him, but he cannot state what was the cause stated by the person. He cannot state that. The witness' statements on the stand cannot be contradicted in that way, but he can tell what the witness said that he suffered.

A. As I said, he was depressed and apathetic, and he said ——

Mr. Miller: I object to that.

The Court: I ruled that he can state that.

A. He said he saw faces of people around him at night, that he heard distant music in his ears. He said he got very melancholy at times and had suicidal ideas, and when I asked him if he saw any other visions he said yes, he had seen the devil once or twice and the devil had touched him once, and when I asked him — I couldn't give the exact words I asked him, but we usually say: "What is the trouble?" or "What are you doing here?" and he said he was arrested for playing ——

Mr. Miller: We object to that.

The Court: Any facts of that sort you cannot state, but

you can say what he said about his symptoms but not what brought him there. The line is a very close one and it is hard to pursue but I think I have made it plain. Proceed.

A. I do not exactly understand my position with regard to the testimony.

The Court: To make that clear to you, this party has been examined as a witness in this case and he stated certain facts which brought about his condition. Now, you are permitted to state the symptoms of his disease as they appeared to you and the things that he said to you touching his condition, but you are not permitted to make a statement or to repeat statements which he had made to you of things that might contradict his statement. That is not the way to contradict a witness.

A. Part of what he told me, that I was going to relate, has a great deal of bearing on this subject.

The Court: No matter as to his previous history, so far as he related it to you, as distinct from the symptom present.

The Witness: May I tell what he told me he did?

The Court: What he had previously done?

The Witness: As to his habits.

The Court: As to his personal habits, all matters of that kind you cannot state, but you can state the symptoms as he described them.

General Cox: He has already stated that he was insane at the time and his statements certainly would not be evidence.

BY MR. HIRSCH:

Q. Could you tell as a physician and as an expert what caused Cory's trouble?

A. Well, I think so; it was a condition that he was born mentally — I may say — I won't say that he was congenitally neuropathic.

Q. What does that mean?

A. That he had an unstable nervous system, probably, when he was born, and that he had habits engrafted upon that which in my opinion gradually turned him to the condition in which I would have made a diagnosis of his case ——

Q. What kind of habits would contribute to that?

A. He said he practiced ——

Q. Don't tell that, but tell me what kind of habits would contribute to that condition.

A. Masturbation, for instance.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What do you mean by neuropathic, — a nervous

temperament?

A. Not exactly that. I mean a man who had an unstable nervous system congenitally.

Q. That means that his nervous system is not normal?

A. No, sir.

Q. A great majority of people are in that abnormal condition from a nervous condition?

A. They are not all neuropathic, however.

Q. But a great many are not normal?

A. Yes, lots of people are not normal.

Q. This man had a disordered brain?

A. When I examined him, yes.

The Court: When was this man's deposition taken?

Mr. Sizer: Last October.

The Court: After he was examined by the doctor.

Mr. Miller: No, four years ago.

The Witness: No, about two and a half or three months.

Mr. Miller: I thought you said July, 1906.

Mr. Sizer: No; July, 1910.

Mr. Miller: I beg pardon; I thought you said 1906.

(Witness excused.)

DR. HENRY A. NEWBOLD,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your name?

A. Henry A. Newbold.

Q. What is your profession?

A. Physician.

Q. How long have you been so engaged?

A. Since 1893. I graduated from the University of Pennsylvania in medicine. Before that I was graduated from the Philadelphia College of Pharmacy in 1870.

Q. Have you been practicing medicine since 1893?

A. Yes, sir.

Q. Have you been devoting your attention to any special line of work?

A. Since about 1895 or 1896 I have been to a greater part devoting myself to nervous diseases.

Q. Are you connected with any hospital in Philadelphia?

A. The Philadelphia General Hospital, for the past ten years.

Q. What is your connection with that?

A. I am an examiner for the insane.

Q. Explain exactly how that is done.

A. According to the laws of Pennsylvania the certification of an insane person requires the signature of two physicians.

Mr. Miller: We object to that.

BY MR. HIRSCH:

Q. Just state what you do.

A. We examine the patients brought into the detention ward.

Q. Did you examine Edwin H. Cory?

A. I did.

Q. Do you remember when you examined him?

A. Somewhere between July 14 and July 16. I signed his commitment papers on the 16th and I examined him several days between July 14 and July 16, 1910.

Q. State the symptoms you found.

A. There was some confusion of ideas. He would talk somewhat disconnectedly. According to the ruling on the last witness, you won't allow me to say what he told us.

The Court: You may express your opinion on what he said to you without stating what he said, but you may take that into consideration in arriving at your opinion, and then finally state your opinion.

A. From all the symptoms and from the matters that he told me in answer to my questions, I decided that he was insane.

Q. Have you formed any opinion as to what caused his insanity?

A. I think he was always insane.

Q. You say you think he was always insane?

A. Yes, sir.

Q. From the symptoms he exhibited would you say in your opinion that he had been guilty of masturbation?

A. Yes, sir.

Mr. Miller: I object to that. I do not think that is proper at all. That is a collateral matter and it can only go to his impeachment, and in the next place I do not think it has any bearing whatever.

The Court: I will not admit it for the purpose of impeachment, but if the witness, who is an expert on insanity, from an examination of that person determined that he was insane and that it was produced by some other cause, I think that is competent, not as an impeachment but as substative independent facts.

General Cox: Your Honor will note that the witness says that he had always been insane.

The Witness: I would like to modify that to a certain

extent. The man was neuropathic always, an unstable nervous condition, and at the time I examined him he was actually insane. I would not say that he was always insane in that sense.

BY MR. HIRSCH:

Q. Give your opinion as to what caused this condition as you found it.

A. I do not know that I could give a cause for it. It was a congenital trouble. He was an unstable nervous character.

Q. What do you mean by congenital?

A. That it was born with him.

Q. In your opinion as an expert had he been guilty of any practices that contributed to his condition as you found it.

A. Yes, sir.

Q. What was that?

A. Masturbation.

Mr. Miller: I object to that, because I think that goes directly to impeachment.

The Court: The exception is overruled as heretofore with an exception.

Gentlemen of the jury, that testimony is not admitted for the purposes of impeaching the truthfulness of the statement made by the other witness, but simply for the purpose of enabling you to determine what was the cause of his diseased nervous condition.

BY MR. HIRSCH:

Q. State as an expert what effect masturbation has on a man, on the mind and nervous system.

Mr. Miller: I submit that is not pertinent or proper. There has been no basis laid for that hypothetical question at all.

The Court. That is overruled with an exception.

A. I could not say that it is an effect. It is a symptom of an unstable diseased mind. Of course, the more it is practiced the worse the patient gets. It weakens the mind.

The Court: If it is merely a symptom and not a cause, the evidence is excluded and on that answer it is excluded.

BY MR. HIRSCH:

Q. Would you say it is a symptom or cause finally weakening the mind?

A. It is one of the symptoms of a weak mind, the inordinate practice of masturbation, it causes a weakness of mind.

Mr. Miller: So you got it in both ways?
The Witness: It is pretty hard to explain.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Now, I ask you as a student in all of these diseases and disordered brains, and so forth, whether or not a man who was capable of operating as a street car conductor for eight years in the City of Philadelphia would be or could be — likely would be an insane man according to your point of view?

A. According to my point of view there are a great many insane persons at large, holding positions.

Q. Holding positions like that and are capable of holding positions?

A. He didn't hold it very long. They are capable of holding them certain times, and then something upsets them.

Q. Assuming this man held a position as street car conductor — or without assuming anything at all, would you say a man who was capable of holding a position as a street car conductor for six or eight years in the City of Philadelphia constantly was an insane man?

A. No, sir.

Q. What would you say?

A. He was not insane constantly.

Q. Then you would say he didn't have this congenital affliction that you speak of? In other words, it did not date from his birth?

A. How was that? I didn't understand you.

Q. Assuming that Cory or anybody else held a position as a street car conductor in the City of Philadelphia from five to eight years, would you or not say that he had had a disordered brain from his birth?

A. He might have had.

Q. He may have been an insane man from his birth?

A. Yes, sir.

Q. And yet held that position and discharged the duties of a street car conductor?

A. Yes, sir.

(Witness excused.)

DR. R. C. KELL,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you a practicing physician?

A. I am superintendent of the Chester County Hospital for the Insane.

Q. Where?

A. Embryville, Chester County, Pennsylvania.

Q. Were you connected with the hospital to which this man Cory was taken in the summer of 1910?

A. I was an assistant physician in the Philadelphia Hospital for the Insane and had charge of the receiving ward in the insane department when Cory was admitted, and I examined him.

Q. Did you assist in examining him?

A. I examined him alone.

Q. State the symptoms that you perceived, and then on those symptoms I want you to state what in your opinion was the matter with him.

A. The patient was admitted to the Philadelphia Hospital for the Insane, July 20, and I examined him. He was apathetic in appearance, more or less depressed. In conversation with him I found that his ideas were scattered, he could not hold to the questions that I put to him, his answers would ramble away from my direct questions. He admitted hearing voices and also said that people influenced his mind, that they controlled his actions.

Mr. Miller: You need not tell what he said about that.

The Court: I think that is competent.

BY MR. SIZER:

Q. Go on.

A. He said people influenced his actions to do both good and bad acts, and that at times he felt as though his mind had not been as good as it had been previous to his coming there.

Q. Now, from those symptoms, what did you conclude was the matter with him?

A. I concluded that the man was insane first, and from the symptoms that he showed I classed him as a psychopathic deficient in nature. This deficiency existed in all probability from his birth, and the character of his illness would make him liable easily to transgress from the straight and narrow way and do immoral things—be given to immoral practices, and so forth.

Q. Immoral practices, such as what?

Mr. Miller: I object to that.

The Court: He may only state that as related as a cause of the condition; if he knows any such he may state it. It is not a question of moral character, it only is competent as bearing on his mental condition.

BY MR. SIZER:

Q. What were the practices that led to that condition as evidenced by the symptoms you observed?

Mr. Miller: I object to that.

The Court: The objection is sustained. The Doctor knows my ruling; he can go on and answer within the ruling.

Mr. Sizer: He said immoral practice and I asked him what kind of immoral practices. He used an indefinite term and I wanted to get it definitely.

The Court: His objection is that his answer before that was not limited to practices which brought about the condition of insanity, and I sustained that objection. I limit the Doctor's answer to any practices that he found as an expert which in his opinion brought about the condition, which was the whole or a considerable part, of the cause of his mental condition.

BY MR. SIZER:

Q. In your opinion as an expert, what practices brought about or contributed to the condition of that man as you saw him in the hospital?

Mr. Miller: I object to that because it is not limited to the symptoms that he found there. That is too general. I insist that must be based on the symptoms as they appeared in this witness and not based on hearsay reputation or anything of that sort.

The Court: You will give your opinion, Doctor, as formed from your examination of the patient himself at the time you examined him, but in arriving at your opinion you may include statements made to you by the patient, although you are not to repeat the statements of the patient, but things that you heard from others are excluded, but you may give your opinion upon what he told you that day and what you saw.

A. The patient said —

The Court: Don't tell that.

BY MR. SIZER:

Q. State your opinion based on what he said.

A. I really — his answers, of course, to my questioning brought out things that were expressions that you might not get from direct questioning.

The Court: I have stated that you may answer the question and give your opinion based on what you saw and what the patient told you without repeating what the patient told you. You may state what your opinion was as an expert, based on what you saw and what he said.

A. I would say that the man was congenitally deficient.

some of the things that I brought out or that he told me spontaneously when I examined him showed me that the man was congenitally deficient.

Q. From your examination did you or not reach a conclusion that any practice in which this man had indulged had contributed to cause his condition?

Mr. Miller: I object to that. I do not think that is competent.

The Court: I will overrule the objection.

A. I would say that the practices that the man admitted to me —

The Court: Now you are telling what he stated. Can't you answer from what he said and what you saw that you came to a conclusion whether there were any practices that brought that condition? That is a very simple question.

A. I would say that patients suffering from the same mental weakness or insanity or insane patients are given to practices of an immoral nature and that they contribute in a way to his defective mental condition.

The Court: That last part of that answer is excluded.

BY MR. SIZER:

Q. I just want to know whether you are able to form an express an opinion from the examination you made and what he told you as to whether or not his condition was due to any practices that he had indulged in.

A. The practices were —

Q. Can't you form an opinion as to that as an expert?

A. Yes, sir.

Q. Now, if you can form an opinion, in your opinion what practice was his condition attributable to?

A. Well, masturbation and of course other things that he admitted. I did not consider contributing causes but that were expressions of mental weakness.

The Court: The last portion of that answer is excluded.

BY MR. SIZER:

Q. Now, give the man's condition.

The Court: I don't think you should go on on that.

Mr. Sizer: I am going on on something else.

BY MR. SIZER:

Q. Could that man's condition as you observed it at that time have been brought about by drinking a soft drink containing caffeine?

A. No, sir. I do not think that any external thing brought about his mental state, that it was congenital de-

ficiency existing from the time the man was born.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Now then, you have based your opinion in this case in part on what you observed in this man and in part on what he told you.

A. Yes, sir.

Q. And your opinion is that he was not born in a normal condition — that is, that he did not have a normal brain and that it had not become disordered after birth?

A. No, sir; I said the deficiency existed from birth.

Q. And continued up to the time he talked to you?

A. Yes, sir.

Q. And yet you took the statements of this insane or this disordered man as being true and have based your opinion on them, that is a fact, is it not?

A. Well, the man's condition was such thatI based my opinion on what I observed and the history I had received and what he told me.

Q. Do you say you based your opinion on what you received and what he told you, from what source did you receive any opinion?

A. In making an examination of an insane patient you have to lay some stress on what you get from the patient himself.

Q. But you said three sources; what you observed, what you received, and what you got from him.

A. Yes, sir.

Q. Now, what did you mean in that connection as to what information you received?

A. From the history, from the friends.

Mr. Miller: Now, I move to exclude the entire opinion that he has given as to this man's disordered condition because it was based in part on history given to him from the friends.

The Court: The motion is sustained.

Mr. Sizer: On examination in chief I asked him only for the opinion he reached from his examination that he made of the patient and —

The Court: But he now shows that he based it on something else that was incompetent.

BY MR. SIZER:

Q. Now, eliminating the history of this condition as you got it from the friends and relatives, can you or not still express an opinion as to what was the matter with him?

A. I can make a diagnosis of the man's condition on what I observed and what he told me himself, excluding any history from the friends or anybody else.

Q. Now, in doing that are you still —

General Cox: He does not say that he did that but he could do it.

Mr. Sizer: And I am going to ask him to do that.

BY MR. SIZER:

Q. Doing that, can you still express the same opinion that you expressed a while ago as to what was the matter with the man?

A. Yes, sir, the opinion is the same.

Mr. Sizer: That is all.

RECROSS-EXAMINATION,
BY MR. MILLER:

Q. Now, under what head do you include masturbation, an external or an internal cause?

The Court: That is immaterial.

Mr. Miller: I submit they made it material by their examination.

The Court: I do not see it that way. He said it was a cause and that is sufficient. This case is not going to depend on this man's testimony. You are taking a great deal of time about that original witness upon whose testimony this case will not turn entirely.

Mr. Miller: I understand that and I am trying to make as much progress as possible.

BY MR. MILLER:

Q. Now, I want to ask you this, Doctor: If I correctly understood you,you said this man's condition was due to internal causes; didn't you state that a while ago in your examination in chief?

A. Internal causes.

Q. And didn't you state it was due to external causes, didn't you state that?

A. I do not recall that I said that.

Q. I want to know now.

A. I do not recall that I made the statement. I can state now that I believe his condition was a congenital defect.

Q. That would mean a defect from his birth?

A. Yes, sir.

Q. That is what you believe his condition was due to?

A. Yes, sir; and not from any outside influence.

Q. You observed, then, that this man had rambling incoherent scattered ideas — a sort of confusion of ideas?

A. Of ideas and of things.

Q. Now, I want to ask you if those are not the very conditions that follow from overdoses of caffeine — if they are not laid down in all the medical authorities as being the things that follow from overdoses of caffeine.

A. I have never heard of caffeine causing a patient to have confusion of ideas and things.

Q. Have you ever read Cushny's book on the subject?

A. His ideas of things — he believed that people controlled his actions and that —

Q. I am not talking about that. I am talking about confusion of ideas and scattered thoughts. Do you mean to say that those are not the ordinary conditions that follow overdoses of caffeine or doses of caffeine? Can you give me an opinion on that point as a nerve specialist?

A. I am not an authority on the effects of caffeine.

Q. What are you an authority on? What is you specialty?

A. In dealing with the insane.

Q. You deal with nerve diseases in doing that?

A. Not so much nerve as mental. There is a distinction, I think.

Q. Mental — that means disordered brain?

A. Yes, sir.

Q. Does not a confusion of ideas result from a disordered brain?

A. Very often.

Q. Is it true that as a student of brain disorders and brain troubles you have not studied the effect of caffeine as administered by way of the mouth on the brain?

A. As I said before, I have not made a detailed study of the effects of caffeine on the brain. I have never done any work on that or studied it.

Q. Then you are not prepared to say what would be the effects of caffeine administered by way of the mouth on the brain?

A. I am not an expert on the chemistry of those drugs.

Q. It is not a question of chemistry, it is a question of physiological action on the subject after it is administered and I want to know whether or not you know the effect of the administration of caffeine to a man who takes it — on his brain?

A. Yes, sir.

Q. What is it?

A. Caffeine is supposed to stimulate the brain.

Q. Is it not laid down in Cushny's and other writers that the taking of caffeine may result in confusion of ideas and a disordered brain?

A. I don't know what your particular author says about it.

Q. Do or not the medical authorities teach that?

A. I only know that caffeine is an excitant.

Q. It excites the brain beyond the normal?

A. It stimulates the brain.

Q. When it excites the brain it puts it in a condition that is abnormal, does it not?

A. It might not be abnormal. Stimulation could be present without considering it as abnormal.

Q. But in the normal man or person where it is administered and acts as an excitant, would not that be an abnormal condition or an abnormal symptom?

A. I could not say it would be an abnormal thing.

Q. And yet it would be an excitant and excite the brain?

A. Cerebral excitement, yes.

Q. You didn't come here, as I understand you, as a scientific expert at all in the matter of brain disorders?

A. Well, I don't know; I am specializing entirely on brain diseases.

Q. Have you given the best answer you can and the fullest answer you can as to the effect of caffeine on the brain, and that is that it is merely an excitant?

A. As I have stated before, I have made no special study of the effect of caffeine on the brain.

Q. Therefore you are not prepared to give an expert opinion on that point?

A. I do not know what an overdose of caffeine would produce on the brain. I have never done any experimental work.

Q. So you are not prepared to speak in that respect. All right.

(Witness excused.)

DR. VICTOR C. VAUGHAN,

the next witness called on behalf of the Intervenor and Claimant, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER.

Q. Where do you reside and what is your calling?

A. I live in Ann Arbor, Michigan, and I am a physician and teacher.

Q. With what institution of learning are you connected?

A. I am connected with the University of Michigan.

Q. In what capacity?

A. I am Dean of the Medical Department, and I teach

the medical students physiological chemistry and hygiene, and I lecture to the law and medical students on medical judisprudence.

Q. Will you please state your medical education, training and experience?

A. I first graduated at a school in Missouri, Mount Pleasant College, Huntsville, Missouri. There I got my Bachelor's Degree. I took the Master's Degree and the Degree of Doctor of Philosophy in the University of Michigan; also the Degree of Doctor of Medicine. I have studied since then short courses in Berlin and in Paris, especially Berlin. I have been a teacher in the University of Michigan since 1876.

Q. What degrees have been conferred on you in your profession?

A. I have the Bachelor's Degree and the Master's Degree, Doctor of Philosophy, Doctor of Medicine. I have an Honorary Degree of Doctor of Medicine from the University of Illinois, Honorary Degree of Doctor of Science from the University of Pittsburgh, Honorary Degree Ll. D. from the University of Michigan and Central College, Missouri.

Q. With what medical societies or associations are you connected?

A. I am a member of the local society, at one time president; member of the State society, at one time president; member of the National society, at one time president of the section on Practice of Medicine; and at one time president of the section on Pathology; member of the Association of American Physicians, the New York Academy of Music, the French Society on Hygiene, the Hungarian Society on Hygiene, and possibly some others which I have forgotten.

Q. Are you in any way connected in a professional capacity with the National Government?

A. I am on the Advisory Board of Public Health. That Board consists of one man from the Army, one man from the Navy, medical departments, and five civilians; I am one of these five civilians.

Q. Did you render any service in the Spanish-American War?

A. I went to Cuba as surgeon of the 33d Michigan. Soon after reaching Cuba I was made Division Surgeon and I continued in active service in the United States Army from June, 1898, to the end of June, 1899. Some years later, by special Act of Congress, I was appointed special adviser to finish the report which we had made upon typhoid fever. I continued in that work for two years,

drawing the pay of a major in the Army. I am now an officer in the reserve corps of the United States Army. I have been twice called to temporary duty as a member of the reserve force.

Q. When was that and where?

A. First in 1909 I was called before the Board to discuss whether soldiers should be vaccinated against typhoid fever. Last June I was detailed to give a lecture to the medical students in the Army — the medical school of the Army.

Q. Are you the author of any medical works or treatises? If so, state them.

A. I wrote a book on physiological chemistry many years ago which passed through three editions and has been out of print for many years. With Doctor Novy I am the author of world "Ptomaines and Leucomaines," the last edition called "Cellular Toxins." This passed through four editions and is now out of print. Besides this I have contributed numerous articles to American and European journals.

Q. Have you made any special study or investigation of foods?

A. I have been studying foods all my professional life. I lecture on foods and have carried on investigations in foods; as a surgeon in the Army I had to look after the health of the men, and as responsible for feeding patients in the hospitals I had to look after the food.

Q. Do you know the substance caffeine?

A. I know the substance caffeine, which is the active ingredient of coffee and tea and certain other beverages.

Q. What kind of a substance is it scientifically?

A. Caffeine is an alkaloidal substance and it is found in plants. It belongs to the xanthine group of bodies.

Q. What kind of a xanthine is it?

A. A trimethylxanthine. That is, it is xanthine with three methyl groups introduced into it.

Q. In what beverages does caffeine appear?

A. Caffeine is found in tea and in coffee, in chocolate, in Matte and in Paragua. It is found in Guarana, and in small quantity in certain plants in this country of the Ilex family.

Q. Are any caffeine containing substances included in the rations of the Army and Navy of the National Government?

Mr. Miller: I submit that is incompetent.

The Court: The exception is overruled.

A. Coffee is used to my own knowledge as a ration in the United States Army, and to my general knowledge and

to a certain extent by observation, in the armies of the other nations of the world. Caffeine is part of the daily ration of every soldier.

BY MR. SIZER:

Q. Is it or not used in the National hospitals and public institutions of other kinds?

A. I know of no hospital in the world from which caffeine is excluded.

Q. You speak of chocolate as containing caffeine. Do you know what proportion of caffeine is found in chocolate?

A. In the best coca nibs the amount of caffeine I think varies from about five-tenths of one per cent. to seven-tenths of one per cent. Of course, when chocolate is made it should be reduced about one-half.

Q. You said the amount of chocolate, you mean the amount of caffeine?

A. Yes; pardon me.

Q. Are you connected officially with any hospital?

A. Yes, sir. There is a large hospital under my direct control; as Dean of the Medical Department it is my duty to inspect that hospital and I do so nearly every day when I am at home, once a week at least, and I give especial attention to the foods served, and there are between four and five hundred people, sick and well, served in that hospital every day.

Q. Is that located in Ann Arbor?

A. Yes, sir.

Q. Are coffee and tea used as regular articles of diet by that institution?

A. Yes, sir; we buy coffee by the thousand pounds at a time.

Q. Is coffee related chemically or physiologically to any normal constituent of the human body, and if so, just go on and state.

A. One of the normal constituents of the human body is xanthine. Xanthine is found in practically all plants and animals. It is found most abundantly in young plants and animals. It is a constituent of the cell — every growing, living cell in a plant or animal, and when those nucleus substances of the cell break up, more or less xanthine is set free. Caffeine is a trimethylxanthine, and when taken into the body it is stripped of its methyl accompaniments and reduced to dimethyl and monomethyl and sometimes probably to xanthine itself.

Q. Is coffee a substance that could be classed as a poison within the ordinary meaning of that term?

Mr. Miller: I object to that as an improper limitation.

The Court: He may be asked whether that is a poison and he can give his own definition. He can testify as an expert on the scientific use, or on his own meaning.

Mr. Miller: This witness has not yet qualified as a toxicologist.

BY MR. SIZER:

Q. Have you had any experience or training or learning as a toxicologist?

A. I teach toxicology and medical jurisprudence to the medical and law students. I am presumed to know something about the subjects I teach, and I have done a great deal of toxicology work.

Q. I will ask you if caffeine is a poison and in answering give your definition of the term "poison."

A. Whether caffeine is a poison or not depends —

Mr. Miller: (Interrupting.) At that point we want to interpose an objection on the ground that this question is one for the Court primarily, and secondly, for the jury.

The Court: That may be, but when there is so much difference about that, we will hear him. I will instruct the jury as to what the meaning of the word "poison" in the Act is, but I will allow each witness to state what he means by poison, so that we may understand his testimony.

Mr. Miller: Note an exception.

The Court: Gentlemen of the jury, in giving his opinion that is not evidence of the meaning of the word "poison" but it is just what he means when he says a poison so that you can weigh his testimony.

Mr. Miller: That may depend on whether you take it or not.

A. It depends on the amount given and the avenue of administration, how it is given. A poison is a substance, as we understand it, which, when taken into the body on account of its chemical constitution, seriously impairs or destroys the function of some part of the body. It may kill or simply impair.

BY MR. SIZER:

Q. Now, in that connection, have you ever known or heard of an authenticated case of death resulting from the use of caffeine in any quantity?

A. I never have, and I think I can say that there is not on record any authenticated case of fatal poisoning with caffeine.

Q. I will ask you if you have examined the Allard case and the Zenetz case, referred to by witnesses on behalf of the Government in the trial of this case, and if so, state what you learned about those cases from reading them,

taking up first the Allard case.

Mr. Miller: I submit the Allard case is here and it can be put in evidence. I do not want his conclusions from reading it. It has been referred to and brought out by counsel on the other side, and I did not bring it out. If they have the cases here, let them put them in evidence.

Mr. Sizer: They put the cases in evidence and we desire this witness to explain as an expert on the reports of those cases. They have been referred to by the Government witnsses as cases of caffeine poisoning with death resulting.

Mr. Miller: My point is I did not call it out. I did not call out those cases; they were all called out by adversary counsel. Now, having called them out, if they choose to explain them, they must not ask the witness but put them in evidence.

The Court: The substance of the cases were read by your witness. One witness was asked to produce a list of the cases and he produced them.

Mr. Miller: Simply gave the citations.

The Court: Practically read them. Now, without reading them, this witness may state what his opinion is as to what the report shows, as to whether it was caffeine poisoning. If counsel for the Government desires the full report, it can be considered in evidence subject to the right of either side to read or refer to them.

Mr. Miller: That is what we want to get, the cases.

The Court: You may file them on either side and you can use them if you desire.

BY MR. SIZER:

Q. Have you read the original report of the Allard cases?

A. I have.

Q. Does that report say that the death was the result of caffeine?

A. The report in the Allard case, every word of which I have read in the original, shows that it has absolutely nothing to do with it. It is headed: "Cases of Theocine Poisoning." Theocine is not caffeine. Theocine is an artificial dimethylxanthine, artifically made. It does not come from caffeine. It is artificially made and in one of the cases reported by that report, caffeine was given as an antidote to save the man after he had been poisoned with theocine. So that that disposes of the Allard case. There is no claim on the part of the writer of that article that it is a case of caffeine or caffeine poisoning; on the contrary, caffeine was given as an antidote for the effects of theocine.

Q. Now, about the Zenetz case. Have you read that

report?

A. I read the orinignal of the Zenetz case. The title of that case shows what it means. The use or the employment of caffeine in diseases of the heart and kidneys. It is true the article is somewhat loosely written and may be interpreted in several ways. The author states that the woman was gesund in health. Later on he says she was not entirely well, and then when she died he says that it was difficult to cut the heart with a knife. Caffeine nor any other acute poison can produce any such condition of the heart. Such a condition of the heart could be the result only of disease. It must have been a fibrous or calcareous degeneration in the heart; besides, the title of the article is: "The used of caffeine in diseases of the heart and kidneys," and the author simply claims it is dangerous to use medicinal doses or large doses of caffeine when people have diseases of the heart or kidneys.

Q. Now, when taken in the form of beverages in moderate quantities, are the effects of caffeine beneficial or injurious to the human system?

A. The effect of caffeine in moderate doses is certainly beneficial. The whole history of the world shows that to be the case.

Q. In what way beneficially — how does it act?

A. Caffeine slightly stimulates — I mean, when it is taken as a beverage. It slightly stimulates the nervous system. It makes the muscles work more smoothly and easily, and more effectively. It has, though probably not in ordinary doses, some slight action on the kidneys. Caffeine is no more poisonous than xanthine, which is a normal constituent of the human body. It is a question as to whether it is as poisonous or not.

Q. Do you know that caffeine-containing beverages are used not only in this country but in other countries, extensively?

A. The whole civilized world uses caffeine-containing beverages, and they have been using them in Europe and this country three or four hundred years, and in Asia we do not know how long.

Q. In addition to the civilized world, are they not used by the uncivilized world to some extent?

Mr. Miller: How does he know anything about the uncivilized world?

A. To some extent.

BY MR. SIZER:

Q. You have spoken a time or two of the use of chocolate as a beverage. Does chocolate contain any other

alkaloid besides caffeine?

A. Yes, sir, theobromine.

Q. How is theobromine related to caffeine with respect to its constitution and effect?

A. Theobromine is a dimethylxanthine, rather closely related to caffeine. Some of the caffeine is changed into theobromine in the body. Theobromine is in some respects a little more active than caffeine, and in others not quite so active, depending on the effects we have involved.

Q. In coffee taken as a bexerage what other substances are present besides caffeine?

A. Coffee taken as a beverage has some tannic acid and a small amount of volatile oil, possibly a mixture of volatile oils which cause aroma or flavor.

Q. What is that volatile oil called?

A. Caffeol.

Q. Does that contain a certain amount of alcohol?

A. It consists of furfurol alcohol.

Q. That is developed in the roasting of the coffee?

A. Yes, sir; m[illegible]tly.

Q. What is th[illegible]ysiological effect of caffeol?

A. It is slightly stimulant.

Q. Somewhat the same effect as caffeine?

A. Somewhat.

Mr. Miller: I object to that; that is suggestive and this witness is very learned.

The Witness: I make no such claim; to be very learned.

Mr. Miller: Adversary counsel do and I concede it. You are too modest to.

Mr. Sizer: He stated that caffeine was stimulant and caffeol was stimulant, and I ask him if they were similar in physiological effect.

A. I don't think we know a great deal about the psysiological effect of caffeol, but it is generally assumed that it is slightly stimulant.

BY MR. SIZER:

Q. Now, you say that the effect of caffeine is stimulating. Is stimulation injurious to the human system in a moderate amount?

A. It depends upon the extent to which the stimulation is carried. Stimulation in a moderate amount certainly is not injurious but is beneficial; we could not live without a certain amount of stimulation.

Q. Have you ever seen this Coca-Cola syrup?

A. I have seen it.

Q. Analyze it?

A. I made a determination of the caffeine in it.

Q. What was the proportion of caffeine you found?

A. 22/100ths of 1 per cent.

Q. Suppose that syrup is taken in the form of a beverage in the proportion of one ounce of the syrup to six or seven ounces of carbonated water, would five or six glasses of the beverage of that kind in the course of a day produce injurious effects or not?

A. I think not. In my opinion it would not.

Mr. Miller: I move to exclude that question and answer because that is a conclusion. He may state the effect it would have on the consumer, but whether or not it was injurious is a question to be presented to the consideration of the jury.

The Court: I am not inclined to think so. The exception is overruled. It may involve a mixed conclusion but I think this is the shorter way to get at the results.

BY MR. SIZER:

Q. Would it produce any abnormal stimulation in your opinion?

A. In my opinion it would not.

Mr. Miller: I object to that. I submit the simpler and better way would be to ask him if it would produce any symptoms, and if so, what.

BY MR. SIZER:

Q. Would it produce any symptoms, and if so, what?

A. I have no doubt it would be stimulating to the brain and muscles, and to some extent possibly the kidneys, slightly.

Q. Would that be an abnormal or injurious symptom?

A. In my opinion in that amount it would be normal stimulation.

Q. Have you conducted any experiments on animals with caffeine?

A. I have.

Q. Just state what experiments and what the animals were that you used.

A. I used guineapigs, in my experiments with caffeine and from the 2d day of February, 1910, until the 16th of May, inclusive, I gave one set of guinea pigs 1/30th of a grain of caffeine by mouth per day. That experiment continued throughout 104 days.

Another set of guinea pigs I administered 1/15th of a grain of caffeine by the mouth every day from March 26th to May 16th, inclusive, about 52 days, I think.

These were the experiments.

Q. Did you have a set of control pigs in each experiment?

A. I had control pigs and to these control pigs every day, every time a dose of caffeine was given, an equal amount of water was given to the control pigs.

Q. With the exception of the caffeine given to the pigs you were conducting the experiments on, were the control pigs and the others fed the same?

A. Exactly.

Q. How did you feed that caffeine to the pigs?

A. Dropped it into the mouth.

Q. What would be the effect on the digestive apparatus of an animal, on his general physiological condition, of feeding a substance through a rubber tube?

A. Feeding the lower animals with food through a rubber tube should be avoided so far as possible, because some of the ordinary foods when fed to animals through a tube are absorbed undigested and may seriously affect the health and may even kill the animal apart from any injury done by the tubes.

Q. What would be the amount of caffeine given, per dose, to a man weighing 150 pounds in order to give him the same proportional amount that you gave to these guineapigs per day?

A. Per unit of weight, — the first set of guineapigs — take a man weighing 150 pounds and to give him the same relative dose it would be about six grains. These guineapigs weighed on an average a little less than a pound. To the second set it would amount to about nine grains, or a little less; these pigs averaged a little more than a pound.

The Court: I think I was in error in my last ruling. I think when the Government witnesses were on the stand I did not allow them to state that the effects of caffeine would be injurious, but I let them state the effects and left it to the jury to determine whether it was injurious, and I want to adhere to that former ruling.

Mr. Sizer: Well, I have asked him what the effects were and they have been described.

Thereupon Court adjourned at 2 o'clock P. M. until Friday, March 24, 1911, at 9 o'clock A. M.

Chattanooga, Tennessee,
Friday, March 24, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances; same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED:

VICTOR C. VAUGHN

resumed the stand for further

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You were testifying on yesterday about some experiments you made with guinea pigs. I believe you say you conducted two series of experiments with guinea pigs.

A. Two series.

Q. One of those sets of guinea pigs you fed a quantity of caffeine equivalent of five or six grains a day to a man of 150 pounds?

A. Yes, sir; counting per pound.

Q. And the amount fed the other was equivalent to how much?

A. A little less than nine grains.

Q. Why did you use two sets?

A. I gave one set bigger doses.

Q. And with each set of caffeine-fed pigs, you carried along a control set of animals not fed caffeine?

A. I had a control set for the two.

Q. How long did you continue those experiments — over what period?

A. The first set of pigs, the longest set, had caffeine from the 2nd of February until the 16th of March — 16 of May inclusive. That was, I think, 104 days; and the second set with the bigger dose were from March 26th to May 16th inclusive, 52 days.

Q. Why did you carry that set of control animals — what was the purpose of that?

A. The control animals were carried for 104 days.

Q. But why did you have control animals?

A. Because it is always better to have animals living under the same conditions under which the others live, and handled in the same way, so as to see whether it is the substance you are giving them that affects them.

Q. Is that necessary in order to make the experiment of value?

A. It is necessary.

Q. Did you observe any effects whatever in the guinea pigs fed with caffeine that were not in the control pigs?

A. I saw no ill effect from the caffeine. Two caffeine-fed animals died during the course of the feeding and one of the controls, but the post mortem examination showed that all three died from an infectious disease prevalent among the guinea pigs in the laboratory at that time.

Q. Was any autopsy performed on the caffeine-fed pigs after they were dead?

A. On the 17th of May, Dr. Hektoon came to Ann Arbor and made a post mortem on the pigs, both the caffeine-fed pigs and the control pigs as well.

Q. What Dr. Hektoon is that?
A. Dr. Ludwig Hektoon.
Q. Of what city?
A. Of the University of Chicago — Rush Medical College of Chicago.
Q. Where was that autopsy performed?
A. The laboratory at Ann Arbor.
Q. Did you examine the remains with Dr. Hektoon?
A. I looked on while he was making the post mortem examination.
Q. Did you observe the condition and characteristics of the carcases?
A. I observed them grossly, not miscroscopically.
Q. By grossly you mean with the naked eye?
A. Yes, sir.
Q. Were there any changes that you observed in the caffeine-fed pigs?
A. No, sir; the caffeine-fed pigs in the longest set increased a little more in weight than the controls, but I did not put any stress on that. The increase was not great.
Q. Do you know whether those carcases were taken away by Dr. Hektoon for any purpose?
A. The pigs were examined and they were taken away —their organs were at least.
Q. By Dr. Hektoon?
A. By Dr. Hektoon.
Q. Are guinea pigs susceptible to caffeine?
A. Guinea pigs are susceptible to caffeine.
Q. Can one who is accustomed to the habitual use of caffeine take larger quantities of it without producing any appreciable effects than people who are not accustomed to it?
A. I think that is a common experience of most of us after we get used to drinking coffee, that we can drink more.
Q. The system acquires a sort of tolerance for it?
A. Yes, sir.
Q. Are guinea pigs accustomed to the use of caffeine as a part of their natural diet?
A. No, sir; guinea pigs do not have much or any xanthine substance in their ordinary diet. Possibly they get a little now and then.
Q. Is that true of rabbits?
A. That is true of rabbits.
Q. You say they get a little now and then of caffeine?
A. Xanthine-yielding bodies.
Q. Not caffeine?
A. No, sir; not caffeine.

Q. Suppose that extensive quantities of caffeine should be taken by any person, what would be the nature of the effect produced, would they be temporary or permanent or what?

A. I suppose this would be governed, or controlled, by the amount. Of course, excessive quantities may be quite indefinite. I have never known a case that was permanently ill-effected from any excessive quantity of caffeine, as far as my observation goes, at least.

Q. What kind of an effect would an excessive quantity of caffeine produce?

A. It would lead to nervousness, possibly some nervous irritability and sleeplessness, and rapid action of the heart.

Q. About how long would it take those effects to pass away?

A. I think usually they pass away withintwenty-four hours.

Q. You had these guinea pigs numbered that you fed the caffeine to?

A. Yes, sir.

Q. Those numbers were given to Dr. Hektoon?

A. Those numbers were given to Dr. Hektoon.

Q. Were pigs 13 and 14 caffeine-fed or not?

A. I have not my numbers here. Shall I get them?

Q. Are they in Chattanooga?

A. Yes, sir.

Q. I will ask you to get those numbers and answer that a little later on.

A. Very well.

Q. When you turned those pigs over to Dr. Hektoon after they were killed, did he know which numbers represented the caffeine-fed pigs?

A. No, sir; he does not know today.

Q. Is caffeine a habit-forming drug?

A. That depends altogether on the use of the word habit. Of course, we get in the habit of doing this or that thing, or taking this or that.

Q. In what sense is caffeine a habit-forming drug or non-habit-forming — in what form could it be called a habit-forming drug, and in what sense is it not a habit-forming drug?

A. A habit-forming substance in the sense that we get in the habit of taking certain foods at a certain time. It is not a habit-forming drug in the sense that we use that as applied to morphine or cocaine or chloral and other drugs of that class.

Q. It is a habit-forming drug in the sense that a per-

son who becomes accustomed to the use of it, requires constantly increasing quantities?

A. It is not a habit-forming drug in that sense; certainly not with the majority of people and I do not think with anybody.

Q. On the other hand, is it true that a person who acquires the cocaine or opium habit does require constantly increasing quantities in order to produce the effects sought?

A. He does, and he finds it difficult to leave it off of his own accord.

Q. Is there any depression that follows the taking of caffeine in beverages in moderate quantities?

A. So far as I know personally, or from observation, there is no depression following the taking of caffeine as a beverage in ordinary doses.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You have not made any study of Coca-Cola except as to the one content, and that is caffeine?

A. That is the only thing I have studied.

Q. You have not observed the habits of persons who are accustomed to taking Coca-Cola?

A. I have observed, no doubt, persons accustomed to taking Coca-Cola.

Q. What I mean is, you have not observed the people who take it — you have not studied those people to see whether it is a habit-forming drug with them or not?

A. I have made no special study of people who took Coca-Cola.

Q. Not study, but observation — have you made any observations in that respect?

A. I suppose I see people who take Coca-Cola, but I never made any study and I don't know anybody who takes Coca-Cola.

Q. If you don't know anybody who takes Coca-Cola— I am not asking you for supposition, but just what you know.

A. I know nothing about the taking of Coca-Cola.

Q. Referring to the introduction of coffee, or its use as a beverage, you do not mean to be understood that that has been used by the civilized countries for three or four hundred years?

A. Did you say twenty-four hundred years?

Q. Three or four hundred years.

A. Coffee was introduced in Turkey — I am giving about the time — about 1500.

Q. That was in Turkey but it was introduced in France about 1820, was it not?

A. Oh, no; about 1600 and something.

Q. Can you produce an authority for that?

A. I think I can.

Q. I would be glad to have you do that when you introduce the other matter that Mr. Sizer asked you to procure.

A. Very well.

Mr. Sizer: Do you want us to introduce that now?

Mr. Miller: You can introduce the Botanica.

Mr. Sizer: We have Hutchison —

Mr. Miller: So have we, and we also have the Botanica. I think the Botanica gives it.

BY MR. MILLER:

Q. Now, at the time of the Revolutionary War in this country, do you mean to say that coffee was in general use in the United States?

A. There were no United States at that time.

Q. I mean on this continent where the United States of America is now — what is now the territory of the United States, was there any coffee in general use here?

A. It was in the cities, at least; I do not know about the country places. It was in New York.

Q. It was in general use in New York City?

A. Yes, sir.

Q. You state that as a part of your general historical knowledge?

A. Yes, sir, I do.

Q. Is caffeine used as a medicine?

A. It is.

Q. Is it related to xanthine?

A. It is xanthine. It is trimethylxanthine.

Q. What are the names of those trimethyls that form caffeine?

A. The names of them?

Q. Yes, there are three; you say it is a trimethyl-xanthine?

A. The methylxanthine are named according to the position which the methyl group takes.

Q. Xanthine proper may be divided into three distinct things.

A. Oh; monomethyl, dimethyl and trimethyl compounds.

Q. Now, one of those is theophyllin?

A. One of those is theophyllin.

Q. Another is theobromine?

A. Yes, sir.

Q. What is the third one?

A. Paraxanthine is a dimethyl and caffeine is xan-

Q. Caffeine is made up of those three, — that is, you get those three from caffeine?

A. Those three?

Q. I mean, from xanthine.

A. Caffeine is a trimethylxanthine; that is, there are three methyl groups in caffeine, and in theophyllin there are two, and in theobromine there are two, and in paraxanthine there are two, and then there are monomethylxanthines.

Q. But all of those enter into caffeine?

A. I don't think that would be a fair statement, no.

Q. Aren't they all obtained from caffeine?

A. They may be obtained from caffeine but I would not say they all entered into caffeine, and I do not think that would be a fair statement.

Q. If you divide xanthines you get all those from it?

A. How is that?

Q. If you divide or dissect caffeine, I mean, you would get all of those from it?

A. Certainly; it may be split up to furnish one or the other or two or more at least.

Q. Now, assuming that caffeine is at the bottom of this tree. (Exhibiting a diagram) You say it is composed of three constituents and you get from it paraxanthine, theobromine and theophyllin.

A. You may get all those from it.

Q. And when you stated yesterday that theobromine was allied or related to caffeine, you mean as indicated by this exhibit that is put before you?

A. Chemically related to it.

Q. It is chemically related to it as shown in that diagram?

A. Yes, sir.

Q. I ask you to file this as exhibit No. one, if you think that is a fair representation of caffeine.

A. I think it is.

Q. I will ask you to file that as Exhibit No. 1 with your testimony.

The Court: That may be done.

(Said exhibit is as follows:)

Q. What is theophyllin as compared with theocin?

A. Theocin is an artificial product.

Q. But I ask what it is as compared with theophyllin.

A. They are both dimethyl compounds.

Q. Are they the same in composition?

A. They are chemically, but whether they are in action or not I do not know.

Q. They are chemically then the same?

A. Yes, supposed to be; I never examined theocin or theophyllin, either, generally. I am only giving that from my general knowledge of the subject. I made no examination.

Q. You are acquainted with Kobert's Textbook on Intoxications?

A. I have seen the book.

Q. Don't you know that he is a recognized authority?

A. Yes, sir; he is a recognized authority, but there may be and probably are many things wrong in his book.

Q. Let me read this from page 1035 of his book:

(Reading:) "Theophyllin, which was discovered in 1888, by A. Kossel in the extract of tea leaves, is one-third" ——

A. No, one to three.

Q. Yes. (Reading:) "one to three dimethylxanthine; a preparation which is identical with it has been repeatedly prepared synthetically."

By that is meant manufactured instead of getting it naturally?

A. Yes, sir.

Q. (Reading:)

"Such a one is theocin."

A. I dare say that is chemically so, but whether theocin and theophyllin are physiologically alike I do not know.

Q. (Reading:)

"Since the plant product is only difficultly obtainable, it has no medicinal importance."

A. That is wrong. Theophyllin obtained from plants is used medicinally.

Q. He does not say that but he says it is obtained with difficulty.

A. It is obtained with difficulty.

Q. Then you agree with that statement?

A. Yes, sir; but it is used.

Q. (Reading:)

"While the artificially prepared theophyllin and its double salts, such as theophyllin sodium, theophyllin sodium acetate, and theophyllin sodium salicylate have frequently been used in cases of dropsy."

A. I dare say that is true; I can't deny it.

Q. As a toxicologist you would think that excerpt that I have read is true so far as you know?

A. So far as I know, it is; but I have no personal knowledge.

Q. Now, taking theophyllin as being identical with theocin chemically, I will ask you if that Allard case which you expatiated on yesterday — the one or two cases as reported by Allard — were not cases of theocin poisoning.

A. They were so reported.

Q. You had the official reports?

A. I had the original reports. There was nothing official about them.

Q. Then they were cases that were due to poisoning from this substance which was chemically identical with theophyllin?

A. Supposed to be but I would have to have an individual sample and submit it to analysis to know that it was the same.

Q. But in so far as you know anything about it at all from the reading of the cases, they were cases practically of theophyllin poisoning?

A. Cases of theocin poisoning.

Q. You say you do not know any difference between theocin and theophyllin?

A. I do not know that they are chemically different. Physiologically they may be different but I do not know.

Q. If there is any physiological difference you do not know it?

A. I have no personal knowledge on that subject. I know that theocin is not caffeine.

Q. But if I understand you, you state that if it has any physiological difference from theophyllin you do not know what it is?

A. I do not know what it is but it may have.

Q. But chemically they are alike?

A. Chemically they are supposed to be, but whether the preparations are alike or not I do not know.

The Court: That has been brought out heretofore and is perfectly clear.

BY MR. MILLER:

Q. Now, take one or the other branches of caffeine, springing from that tree, namely, paraxanthine, and I ask you if in your own treatise on leucomaines and cellular toxins, you do not record that as poisonous yourself?

A. There is no doubt about the poisonous action of paraxanthine. That is, from the literature. I never made any experiments with it.

Q. Look at your own book on page 481 and in treating of xanthine, don't you put it down under the head of a poison and give its nature as being poisonous?

A. There is no question but what the literature ranks paraxanthine as a poison. I never made any exper-

iments.

Q. You admit it appears in that book?

A. Oh, yes; there are many things in that book I do not know anything about.

Q. You wrote a book and sent it out to the world on poisons that you do not know anything about?

A. Yes, sir; a great many things I don't know anything about. What I don't know about the xanthine bases would make a big volume.

Q. Now, when you state that the effect of caffeine is beneficial and undertake to reason from that that it is because it is related to the xanthine group or bases, you admit now in your testimony that there are a good many things about that xanthine that you don't know anything about?

A. A great many things.

Q. And you at least admit that part of them are poisons?

A. Yes, sir; in large quantities.

Q. Now, when you stated that xanthine was a normal constituent of the body, did you know about that or not?

A. Yes, sir; I know about that personally.

Q. Now, what is your proof on that point?

A. Xanthine is found in the normal urine.

Q. Well, do you mean to say that urine is a normal constituent of the body?

A. It comes from the body and health.

Q. I understand, a great many things are excreted from the body that you would not call normal constituents of the body.

A. Urine comes from the body in health and at one time a normal constituent of the body.

Q. Well, food goes into the body and is excreted?

A. Yes, sir.

Q. And because you eat bread, that don't mean that you call bread a normal constituent of the body?

A. Oh, no, no.

Q. That don't mean that this fecal matter that is excreted is called a normal constituent of the body?

A. No.

Q. That is simply a waste product, this xanthine product, or uric acid that comes from the body; that is simply a waste product the body throws away?

A. If it formed in the body.

Q. By reason of degeneration or the breaking down of the cells?

A. Yes, sir; that is the way urine is formed in the body.

Q. Urea is a normal constituent of the body?

A. But I am talking about urine.

Q. Yes, you don't call it anything until it is gathered together and eliminated?

A. You don't call it urine until the breaking down of the cell takes place and oxidation takes place and it is ready to be delivered or emitted from the body.

Q. Well you call it uric acid?

A. Call it uric acid?

Q. I mean urine.

A. After it is all collected and eliminated through the kidneys, it is called urine.

Q. And before that time, you have uric acid?

A. Yes sir.

Q. And it produces uremic poisoning if the body does not get rid of it?

A. I didn't know before that uric acid produced uremia.

Q. Do you say it does not?

A. I don't think so.

Q. If the body does not relieve itself of it, what follows?

A. It may form stones.

Q. Stones?

A. Yes, sir; it may form stones—form concretions—gout.

Q. Uric acid produces gout and rheumatism?

A. It is a question about rheumatism, in some forms gout is produced by accumulation of uric acid in the body.

Q. So that when the cell degeneration takes place and the matter that is accumulated in the degeneration process, and that is combined with something else, you you form uric acid?

A. Yes, sir; when the xanthine body in the nuclei of cells are formed, that is by breaking down of the nuclei cells and the xanthine is oxydized, why some uric acid is formed.

Q. And that uric acid is discharged?

A. Yes sir.

Q. And that is what you have termed in your book as a waste product?

A. Yes, sir; it certainly is.

Q. And as respects caffeol, you don't pretend to say what its composition is?

A. No, sir; I do not.

Q. Or what its physiological effect is?

A. No, sir; I have made no experiments with caffeol at all.

Q. In your work on Cellular Toxins, you state this: (Reading.)

"Xanthine causes muscular rigor and general paralysis, but not increased irritability."

A. I think so, if you read it correctly, that statement is in the book.

Q. Do you mean or not that is a correct statement that I have read you?

A. How?

Q. Do you mean to state whether or not that is a correct statement?

A. Yes sir, that is a correct statement so far as I know. I know that it does produce convulsions in animals as I have tried it.

Q. If it produces it in animals, you mean men of course?

A. No, sir; I mean guinea pigs.

Q. In guinea pigs?

A. Yes, sir.

Q. Have you any reason for believing that it produces it in guinea pigs and not in men?

A. I suppose if given in the same doses, it would have the same effect but that is a supposition.

Q. You didn't experiment with man because it is preferable to experiment on animals?

A. Yes, sir.

Q. The animal experimentation is regarded as a standard method of experimentation, as a rule is it not?

A. Yes, sir.

Q. This book that you wrote was written for a man and not for guinea pigs, wasn't it?

A. Most of these experiments were made on the lower animals. Some of these experiments with xanthine bodies were made on man.

Q. I know, but I am asking you if this was not intended to be a treatise for treating human diseases?

A. That was a treatise on the chemistry of the animal body.

Q. Was not the book, the object of writing it, to enlighten the world, and particularly the medical profession, as respecting certain drugs, the effects of certain drugs on humanity?

A. Yes, sir; Assuming that we have similar effects on man as on lower animals.

Q. Now, how many of these guinea pigs were there that were fed caffeine?

A. There were six in each set, two of the first set died, as I stated, but none of the second set died; one

of the controls died.

Q. How did you administer the caffeine, through the mouth or was it baked and given to the pigs in some sort of food or how?

A. No, it was in solution and dropped into the mouth of the guinea pig.

Q. How did you manage to control the pigs long enough to drop it into the mouth?

A. Very easily done sir, simply take the little guinea pig in your left hand and hold him up by your side and with your thumb and finger open his mouth and with a tube drop the fluid into the throat and then by a simple preasure on the jaw, he swallows it.

Q. You have to take him up in your hand and pry his mouth open and put a tube in it?

A. No, sir; not a tube, the tube does not touch his mouth, it is over his throat.

Q. What kind of a tube was that?

A. A medicine dropper.

Q. And you dropped that into his mouth?

A. Yes sir.

Q. And then you had to make him swallow?

A. It is simply just a little pressure—he swallows it.

Q. Who assisted you in conducting these experiments Doctor?

A. An assistant of mine, Mrs. Worcester.

Q. Mrs. Worcester?

A. Yes, sir.

Q. What part of the work did she do?

A. She administered the caffeine.

Q. And where was it administered, where were the pigs kept?

A. In my own work-room.

Q. And who prepared the caffeine solvent which you gave to Mrs. Worcester?

A. I don't know whether I dissolved it or not, but either she or I dissolved it, but I produced the caffeine.

Q. Where did you get the caffeine?

A. It was bought in Germany, either from Schubert or some other German firm.

Q. Who bought it?

A. We buy all of our chemicals in Germany, Mr. Miller, the University of Michigan buys its chemicals in Germany.

Q. You ordered this from Germany?

A. Yes, sir; it was in our stock.

Q. And it was taken from stock?

A. Yes sir.

Q. And you stated that you took it and made it up or that she did?

A. I don't remember which dissolved it, but I got the bottle.

Q. You got the bottle and if she made it up you don't know how she made it up?

A. Yes, sir; I do. She weighed it before me if she weighed it.

Q. Do you remember how that is?

A. No, sir; I am not sure whether I weighed it or she weighed it; it was done in my room and on my scales.

Q. You don't know in the first place whether you did or she did?

A. I am not positively sure which.

Q. You don't know as a matter of fact if it was actually weighed at all?

A. Yes, sir; I weighed it or saw it weighed.

Q. If you know that it was weighed, I want to know how you know it?

A. I can't tell you any more than I have told you, I either saw it weighed or weighed it myself.

Q. You don't know whether it was caffeine or not?

A. Yes, sir.

Q. What tests did you resort to?

A. I bought it first, that is it came in unbroken bottles from a reputable manufacturing house. It was tested repeatedly for caffeine by the meuraxic test.

Q. Who tested it?

A. I did.

Q. Do you state, Doctor that that is a sufficient test to determine whether or not it was not some other substance?

A. I suppose I have taken the melting point, but I did not, Mr. Miller.

Q. I am asking you Doctor as a scientist, I want to know whether that is a sufficient test to determine whether or not that was caffeine.

A. I think if I buy a thing from a reputable house and it comes in an unbroken package labeled caffeine and I take it out and test it by that test, I think that is proof that it is caffeine.

Q. That it is caffeine, that is your opinion?

A. Yes, sir.

Q. But, you see, I am asking you what was the proper test.

A. I think, under those circumstances, that was a sufficient test.

Q. But do you or not state that this meuraxic test that you referred to, was the proper test to determine whether or not the caffeine was present and the amount?

A. Under those conditions, certainly I regard it as such. If it had been from an unknown source, I should have to have gone further.

Q. In the first place, do you know it came from this reputable house, how do you know that?

A. Well, it came in an unbroken package.

Q. You don't know whether it was shipped from there?

A. I know all of our chemicals, we buy all of them, they come from that house, we get the bill and pay the bill.

Q. Well, you pay the bill.

A. Yes.

Q. You buy it direct or through someone else?

A. We buy it direct.

Q. And have it shipped over here?

A. Yes, sir; it comes in bond.

Q. Now, what would have been disclosed by this test you applied, what would have been the difference by this test you applied between caffeine and theobromine, for instance?

A. Why, they would both give the same test.

Q. And so far as you know this may have been theobromine?

A. Oh, that is a bare possibility, I suppose, not at all probable.

Q. You say it is not at all probable because you ordered it under the name of caffeine and you paid for it under the name of caffeine?

A. And it came under the name of caffeine and it gives the meuraxic test.

Q. You say that same meuraxic test—

The Court: He stated that.

Mr. Miller: I move to exclude the experimentation about those guinea pigs on the same theory this citric acid was excluded and for the same reason, here is caffeine which has three properties, and I have shown that two were poisonous—shown to be so, and one produced death and the other the doctor says, is poisonous, in fact he says it may be, the third—

The Court: (Interrupting) I understand the point. I overrule the exception. I think it is a question for the jury as to whether that test, under the circumstances for caffeine was sufficient or not. My own opinion about it, it is not necessary to express.

Mr. Miller: We note an exception.

BY MR. MILLER:

Q. Now, in addition to Mrs. Worcester, what other assistants did you have?

A. Why, I had no other assistants in these experiments except Mrs. Worcester.

Q. What proportion of the time, of the 104 days were you in Ann Arbor, and what proportion were you away, have you got any means of knowing?

A. Yes, sir; I have means of knowing.

Q. What are they?

A. I was absent during that time about ten days. I can't give you just the number of days, but I was absent, however, about ten days.

Q. What was the other food which these pigs were given?

A. What was the other food?

Q. Yes, besides this substance that was either theobromine or caffeine?

A. The food that the guinea pigs had was oats, carrots and hay ad libitum, that is all they wanted.

Q. Did you make any test to ascertain whether of not there was sugar in the urine?

A. I did not.

Q. Are you acquainted with a treatise or article by Dr. Carl Voight, Professor at the University of Munich?

Mr. Hirsch: I would like for you to produce that, and not read from an extract—

Mr. Miller: We simply asked him if he was acquainied with that.

BY MR. MILLER:

Q. The title being Investigations Concerning the Influence of the Common Salt of Coffee and of its action and of Metabolism?

A. I don't think I ever saw the article, I have no recollection of it.

Q. When you state that post mortem examinations were held to ascertain certain things, if I understand all you pretend to say with respect to these post mortems, Was what was disclosed by the natural eye?

A. That is all.

Q. And when you stated that the post mortems disclosed that two of these pigs died from some cause, is that something that you observed yourself with the naked eye?

A. I did.

Q. And what was it that you discovered by the use

of your natural eye that caused you to state that two of these pigs died from something else?

A. On opening the abdomen of these guinea pigs, it was found to be thoroughly inflamed and infected, and cultures were made from the surface, and the germ was obtained.

Q. That was what?

A. A germ.

Q. What kind?

A. A bacillus, I didn't determine what the nature of it was.

Q. Then in the case of the third pig, was there any culture made?

A. The same organism found in the third that died, the one control and the two caffeine pigs.

Q. When were these pigs killed, these guinea pigs?

A. On the 17th of May, 1910.

Q. And when were they turned over to Dr. Hektoon, for examination?

A. Just as soon as they were dead.

Q. He was at your place at that time?

A. Yes sir.

Q. At Ann Arbor?

A. Yes, sir.

Q. And how were there pigs killed?

A. With chloroform.

Q. If I understand you, you did'nt attach any importance one way or the other to the fact of the increase in weight in some of the pigs?

A. I did not attach any great importance to that.

Q. Why do you say that a tolerance is built up, and what do you mean by tolerance?

A. In that connection the exact evidence of caffeine taken continually or habitually—I meant to state that a person who has never taken any coffee or any caffeine-containing substance, would be stimulated more by a similar amount than a person who had been in the habit of taking it.

Q. Well, the fact is, that in delivering a class lecture to your class, or one of your classes, on hygiene or physiological chemistry about 1895, or 1896 or 1897, well, I will say about 1896 or 1897, at Ann Arbor, in commenting on the effects of caffeine, you related this circumstance in your own life, that you were traveling abroad and took a cup of coffee one evening.

A. (Interrupting) A pot of coffee.

Q. A pot of coffee?

A. Yes, sir.

Q. You are acquainted with the circumstances?

A. Yes, sir.

Q. And your deposition was taken in this case at Ann Arbor?

A. Yes, sir; it was.

Q. And after it was taken, certain supplemental interrogatories were submitted to you on this identical point?

A. Yes, sir.

Q. And you have reflected over that since that time, and you are now acquainted with these circumstances.

A. I knew the circumstances twenty years ago.

Q. What was the circumstance? How did coffee effect you at that time?

A. I will be glad to tell the jury about that. I had reached thirty years of age before I ever drank a full cup, I think of coffee, in my life. Not because I had any prejudice against it, but simply because I liked milk better, and I was in Germany at the time this happened; it was in 1888, I had a light German breakfast, and some coffee—coffee milk, and some rolls, and I did'nt get anything to eat until nine or ten o'clock at night, or possibly I may have had a little but not an adequate noon-day meal, and at nine or ten o'clock I was at the Hotel Bellvue in Dresden and when I ordered my dinner I noted notices were put up that the water was infected and not to drink it and I had my choice between wine, beer or coffee. I had not gotten used to drinking beer at that time, at least, and so I ordered a pot of coffee with my meal, and I thought I never tasted anything so good in all my life as that coffee, and I drank the pot; how much there was in that pot I cannot tell, three or four cups, pretty strong coffee. And I found an hour or two later my pulse was beating very fast and I was quite stimulated. I could not sleep and I spent an hour or two and probably longer walking in the garden of the hotel. The next morning the ill effects were all gone and I told this story to my class, this bit of my personal experience — to illustrate two things — first, the effect of large doses of caffeine, as to how much I took I cannot say, I suppose two grains to the cupful, that would mean that I had six or eight grains or possibly more, at least that. I told it to illustrate the effect of caffeine in large quantities on one who is not accustomed to taking it and upon the temporary character of the effects.

Q. Now, then in telling that you did not speak of a pot that held four of five cups of coffee, but did you tell

your class at that time in 1896 to 1897 that you had a cup of coffee?

A. I surely did not, Mr. Miller. I remember very well, I can see that pot yet.

Q. Then you ordered a pot for two for yourself?

A. I had a pot of coffee for myself.

Q. I know, but we have pots of coffee for one person and pots of coffee for two persons. Do you mean to say you drank a whole great big coffee pot of coffee ordered for two people or for a family?

A. I don't know how much was in the pot; there might have been two or three cups.

Q. The ordinary pot that is served to one individual holds about two cups of coffee or a cup and a half?

A. I think it holds at least two cups; possibly more. I have had other experiences with caffeine if you want me to detail them.

Q. A great many of us have, Doctor. I am asking you to respond to my questions.

A. All right, then.

Q. Now, you wrote an article entitled: "Healthy Homes and Foods for the Working Classes," didn't you, and read it before the meeting of the Medical Association at Philadelphia some years back?

A. Well, you get that somewhat mixed. I wrote the Lomb prize essay for Healthy Homes and Healthy Food for the Working Classes.

Q. It was written, I should have said, for the American Public Health Association.

A. Yes, sir.

Q. Instead of at Philadelphia?

A. Yes, sir.

Q. And your attention was called to this in your supplemental cross-examination?

A. Yes, sir. That little book has been distributed in large numbers and printed in several languages and has been widely distributed among people of this country.

Q. And in that book you stated that it is not necessary to go into details concerning coffee since it resembles tea in so many of its properties?

A. Yes, sir; I did.

Q. (Reading): "The active principle of coffee called caffeine is identical in chemical composition and physiological effect with thiene of tea."

A. I did.

Q. Now, then, in writing on that you said then, didn't you: "From what has been said it will be evidence that the only time when tea should be used is late in the day

after the heaviest meals have been taken"?

A. I did make that statement.

Q. Is that true or not?

A. It is true if you take it with the preceding statement there, what has been said, that I drew that conclusion or that was a conclusion that was drawn upon experiments by Doctor Smith. I think that is right. The preceding paragraph.

Q. Do you say that is or is not true, that statement?

A. I say twenty more years of experience and observation would lead me to state that the use of tea or coffee need not be confined to the latter part of the day.

Q. So that since you wrote this and have distributed it and it has been published in so many foreign languages that you talk about, why, you have changed your opinion on that subject?

A. I have modified my opinion. If I erred I erred on the side of limiting the quantity.

Q. You erred on the side of limiting the quantity?

A. Yes, sir.

Q. You stated further that for weak and debilitated persons it is not suitable or should be used very sparingly, didn't you?

A. Yes, sir.

Q. Have you modified your opinion on that point?

A. I should not be so solicitous for the effect of tea and coffee on the weak and debilitated.

Q. You think now it would not affect them?

A. It might.

Q. It might?

A. Yes, sir; there may be exceptions.

Q. It has a tendency to produce sleeplessness ——

A. (Interrupting) Yes, sir.

Q. Have you modified your views on that subject?

A. No, sir.

Q. If sleeplessness be produced you know that it is not beneficial to health, but on the contrary, deleterious?

A. Not always; I should not go quite as far as to say that. Some people sleep too much.

Q. Is it true that the average man, and didn't you state in your deposition given at Ann Arbor, that the average man did not sleep enough?

A. I do not think I made any such statement.

Q. Didn't you state in this connection—to refresh your recollection — that if a man did not get the normal rest —

A. (Interrupting) Yes, sir.

Q. And that therefore he should take a stimulant?

A. If a man did not get his normal rest.

Q. If he gets his regular amount of sleep, he then does get presumably his normal rest, doesn't he?

A. Yes, sir.

Q. Then isn't it true that you stated in Ann Arbor that man did not get the requisite amount of sleep on an average?

A. I said he might not get it.

Q. That he might not get it?

A. He might keep awake, so he would not get the normal rest.

Q. And if he didn't get the normal rest, then he would not get the requisite amount — I mean, if he didn't get the normal sleep he would not get the requisite normal rest?

A. Certainly.

Q. And if he didn't get normal rest his health might be impaired as the result?

A. Yes, sir; certainly. Certainly, certainly.

Q. And as a result premature nervousness would be brought on?

A. It might be; yes.

Q. And in your book on Cellular Toxins, I read this statement, is it correct or not, at page 345. (Reading):

"The action of caffeine is directed upon the central nervous system, the muscles and the kidneys."

A. Well, read along a little further.

Q. I am asking you if that is a correct statement, is that a correct statement or not?

A. I think there is a little more there.

Q. Now, before we get to the little more, I will read the other ——

The Court: The witness may explain that sentence if he wants to.

Mr. Miller: Well, I have no objection.

The Court: He can qualify it if he wants to.

The Witness: I should like to hear the next sentence.

BY MR. MILLER:

Q. "The effects on the central nervous system" ——

The Court: Hand the book to the Doctor and let him see if he wishes to read anything from it.

Mr. Miller: All right, sir. (Handing book to the witness.)

The Witness: Shall I read the whole of it?

BY MR. MILLER:

Q. I asked you just about that sentence.

The Court: If you want to qualify that by reading any qualifying statement you care to, you may do so.

The Witness: Well, I can't explain one sentence without the whole thing.

Mr. Miller: I thought that. I thought your Honor held the other day that portions that dealt with the particular matter under consideration should be read.

The Witness: I think it does here.

The Court: If there is any sentence there that connects with or modifies that sentence that Mr. Miller read, as I understood you to suggest there was, you may read it; if there is none, it should not be read.

The Witness (Reading): "The action of caffeine is directed upon the central nervous system, the muscles and the kidneys. The effects on the former, that is on the central nervous system, is one of increased reflex irritability which, as in the case of strychnine, may lead to complete tetanus and even paralysis."

BY MR. MILLER:

Q. What do you mean by tetanus?

A. Convulsions. The muscles contract more easily, and with large doses they become permanently contracted, passing into a condition of coagulation like that caused by heat and cold.

Q. So that the action of caffeine is directed upon the central nervous system, the muscles and kidneys, is that your opinion now?

A. Yes, sir.

Q. How does it reach the muscles and affect them, Doctor?

A. It reaches the muscles through the blood.

Q. It is brought through the blood when you take it into the mouth, in contact with the muscles?

A. Yes, ultimately it is.

Q. And what do you mean by effects on the former, namely, the central nervous system, being one of increased reflex irritability?

A. Why, the animal responds to irritation more promptly if you irritate it; it responds.

Q. He is more easily irritated?

A. Yes, sir.

Q. Or, rather, what we term more nervous?

A. Yes, sir.

Q. (Reading): "Which, as in the case of strychnine, may lead to complete tetanus and then paralysis."

A. That is when poisonous doses are given.

Q. Of course, before that you did not mean poisonous doses, you only meant doses that did not kill.

A. The latter refers to smaller doses, that the muscles

were smoothly — that refers to ordinary doses.

Q. Those are the ones you say are directed upon the central nervous system and are seen in the increased reflex irritability?

A. No, sir; the next sentence is relating to the muscles.

Q. The way the text is: "The action of caffeine is directed upon the central nervous system"?

A. That is right.

Q. The muscles and the kidneys, the effects on the former are seen in the increased reflex irritability?

A. Yes, sir.

Q. "Which, as in the case of strychnine, may lead to complete tetanus and even paralysis"?

A. Yes, sir.

Q. Are you talking about large doses?

A. Large doses; poisonous doses.

Q. Now, I go ahead. (Reading): "The muscles contract more easily and more" ——

A. That is in smaller doses.

Q. Where is the distinction, the one follows right after the other, you don't say anything about that there.

A. That is the reason it needs explanation.

Q. So that in writing this book on this subject you did not draw a distinction between large and small doses?

A. I presumed that anybody intelligent enough to read the book would understand that.

Q. If that is true, why did you use the words "Large doses" in the next sentence that you wrote, if you acted on that presumption, namely, the muscles contract more easily and more effectively and with large doses they become permanently contracted, possibly into a condition of coagulation. Now, if you presumed that the average reader would understand that in the one case, why did you not presume it in the other?

A. It is stated in that sentence — I do not recognize the fact that it is stated—it says the effect of caffeine is to make the muscles work more smoothly and of course, with larger doses. I have given the other — it seems to me the way I have given it it means smaller doses, but that with larger doses it produces tetanus.

Q. That is what I am asking you. Up to the point where you got to the qualifying term "large," hadn't you been talking about moderate doses?

A. In that sentence but not in the preceding sentence.

Q. That is all part of the text and all found together without any new paragraph in your book?

A. Yes, sir.

Q. And has been read literally to the stenographer?

A. Yes, sir.

Q. Have you ever made any animal experimentation to ascertain as to the effect of the action of the muscles under the influence of caffeine, and if so, what?

A. I have killed animals with caffeine — guinea pigs.

Q. What kind of animals?

A. Guinea pigs.

Q. Did you use an instrument or any mechanical appliance to determine the regularity of the muscle?

A. I did not.

Q. In so far as you undertook to state the regularity of the muscle action, that is purely an opinion of yours?

A. That is personal observation — small doses.

Q. What animals did you experiment on to observe the effects on the muscles in small doses or in large doses? When did you lay open the anatomy and look at the action of the muscle?

A. I never did.

Q. You know that such a thing is easily possible?

A. Yes, sir.

Q. Now, when you say a moderate dose is a stimulant, what do you mean by a moderate dose of caffeine?

A. I suppose that varies with the individual. I can tell what is a dose for me. Each one of us can tell what the dose is for himself, what we ordinarily take per day.

Q. It varies with different individuals; some drink one, two, three or four cups of coffee?

A. I suppose the dose varies.

Q. Then you are not prepared to say what is a moderate dose of caffeine?

A. I will say anything under eight or nine grains, a day, distributed throughout the day, would be moderate.

Q. That is 24 hours, but I am talking about a moderate dose.

A. Oh, two grains is a moderate dose, taken by the mouth.

Q. You would say that double the dose prescribed by the pharmacopoeia is a moderate dose?

A. Certainly. We take two grains of caffeine in many of the cups of coffee we take.

Q. It is not a question of what we do but as to what you mean by moderate.

A. Two grains at a time in the mouth.

Q. Now, you read a paper on the use of food preservatives before the Pathological Society of Philadelphia in 1904, did you not?

A. I think I did.

Mr. Sizer: I do not particularly object to going into the

subject of food preservatives, but I do not think it has any bearing on this case.

The Court: I cannot see the bearing.

Mr. Miller: The object is that we want to show that substances brought in contact with foods as preservatives have poisonous effects, and that is what I am trying to prove about caffeine.

The Court: Ask him about caffeine, then.

MR. MILLER:

Q. In that you undertake to define what a poison is —

Mr. Sizer: That is on the subject of preservatives and until he shows that caffeine is a food preservative this discussion is irrelevant.

Mr. Miller: They asked him yesterday to define a poison, and I want to show his different definitions.

The Court: You may show his definition of poison if it is different from the one he gave here.

MR. MILLER:

Q. Do you not define a poison this way: "Therefore, a poison may be defined as a substance that destroys or impairs the cell function by virtue of its chemical constitution"?

A. I think I defined it that way yesterday.

Q. You subscribe to that now?

A. Certainly.

Q. "A substance that combines with and consequently interrupts the functions of the cell of the respiratory centers of the brain causes the speedy death of the individual while those substances that destroy the blood and the liver and the kidney cells are slow poisons, inasmuch as the life of the individual may survive the destruction of a large number of these cells, but those of one class are just as truly poison as those of the other." You used that language?

A. Yes, sir.

Q. And that is your view now?

A. Yes, sir.

Q. Is it not true that all poisons are such because they destroy or impair the action of certain cells of the body and the immediate effect on the life of the individual depends on the kind and number of cells put out of commission?

A. I think that is true.

Q. In one of your articles on food for the workingman, or in substance that, don't you use this language, and is it true or not: "Considerable discussion has been carried on over the question of whether or not its use (that is, mean-

ing tea, in which the active constituent is theine) increases waste of tissue. This may now be considered as settled in the affirmative."

A. I think I did make that statement. I stated that it had apparently at that time been settled in the affirmative, but there have been experiments since that that controverted that.

Q. Have you conducted any of those?

A. No.

Q. You were called before a committee, or appeared before a committee as the representative of a manufacturer at the time this Pure Food and Drugs Law was under consideration by the National Congress, did you not?

A. Yes, sir.

Q. Now, when you were called on there to tell what would be a poison or state your views as to how much of any given substance could be taken into the body daily, was not this the standard which you gave, or the reply that you gave to Mr. Mann, of the committee, when the question was put to you: "I should say certainly — (speaking of a given substance) ——

Mr. Sizer: What substance?

Mr. Miller: The substance that Doctor Vaughan appeared for, if you want me to name it.

Mr. Sizer: Yes, name it.

Mr. Miller: Benzoic acid was what he appeared for.

BY MR. MILLER:

Q. Now, as to what could be safely taken into the body of a given substance ——

The Court: Benzoic acid?

Mr. Miller: Yes.

The Court: That is immaterial. It is not a question of what amount of benzoic acid can be taken in We are inquiring as to caffeine.

Mr. Miller: This is a general statement. He made a statement defining the amount that might safely be taken into the body and based it on a certain conclusion that I think is quite important, namely, the amount generated in the body of the substance.

The Court: Well, proceed.

BY MR. MILLER:

Q. You were asked this question: "How much can you eat without injury"? and didn't you answer Mr. Mann thus: "I should say certainly the amount that is formed in your own body which is from one to ten grains a day"?

A. Of benzoate of soda.

Q. Then the standard of measurement that you could safely take without any untoward effect was the amount formed in the body?

A. Of benzoate of soda.

The Court: I think that was limited to benzoate of soda and has no bearing here.

BY MR. MILLER:

Q. Did you or not state that the amount of caffeine which can be safely taken into the body without injury is that which is formed or generated in the body during the day?

A. No, sir; I did not say that.

Q. Do you know how that is?

A. No, there is no caffeine generated in the body.

Q. Is there any xanthine generated in the body?

A. Yes, sir.

Q. How much per day?

A. I do not know.

Q. Then if you do not know how much xanthine is generated per day in the body, how can you say how much you can safely take?

A. Only from experience how much caffeine we can take.

Q. Then you do not pretend to say except in individual cases how much can be safely taken into the body without injury?

A. I think we can average the cases where so many people take it.

Q. A great many people are taking morphine and cocaine, but I am not talking about them. I want to know if there is a test by which we can determine the amount that we can take daily in the body without injury.

A. Nothing except experience, so far as I know.

Q. Does or not the fact that xanthine is found in the body in certain quantities determine or give us any test by which we may approximate the amount of caffeine that may be taken into the body?

A. I do not know; I could not answer that question. I do not know anything about it.

Q. Do you know what, if any, valuable attribute of xanthine there is when it is found in the body?

A. I cannot be positive about that. I have no positive knowledge on that.

Q. You have been attending this trial how long, Doctor?

A. I came here a week ago last Sunday.

Q. Do you mean to state that xanthine is one of the

normal constituents of the body or that we merely find it in the body?

A. I think if we find a substance constantly in normal bodies, it is a normal constituent of the body.

Q. Where do you find it, after what process?

A. I don't know. I suppose it might be found in the muscles. I never tested for it in the muscles.

Q. That is pure supposition on your part?

A. If a thing comes from the body and it keeps coming, then there must be some of it in the body.

Q. But if you keep eating xanthine products and keep drinking xanthine products which might furnish it in the body, it would certainly keep coming?

A. Certainly.

Q. Now, my point is how you know that xanthine is a constituent of the body as contra-distinguished from a substance formed in the body in the breaking down of the cells and after the degeneration of the cells and organs occur.

A. I don't think I could make any such distinction.

Q. Then you do not undertake to say that xanthine as such is found in the cell free?

A. No, I do not think it is.

Q. You do not undertake to state that, that xanthine is found in the nucleic acid?

A. It is in combination.

Q. Is xanthine in combination there and can you take the nucleic acid and extract xanthine from it?

A. Yes, sir.

Q. Have you done that?

A. Yes, sir.

Q. When it is liberated and becomes xanthine, — do you know when that is?

A. I don't know when, but it does occur.

Q. Don't you know from your reading and are you not prepared to give a scientific opinion, that xanthine as such does not occur until that cell becomes impaired and begins to break down and the former substance is ready to be eliminated or about to be eliminated from the body?

A. I know that is true.

Q. Then after you combine one atom of something else with this xanthine, you form uric acid?

A. Yes, sir; it may be oxydized into uric acid.

Q. Instead of "maybe", is it not a fact that is the way it is combined in normal process?

A. In part.

Q. What is the remainder of it?

A. The remainder of it goes out as xanthine. Some of it probably is burned as urea.

Q. Yesterday in answer to a question you stated it this way, when asked if caffeine was related chemically or physiologically to one of the normal constituents of the human body, and if so to state how, you answered: "Caffeine is a trimethyl xanthine and when taken into the body is stripped of its methyl accompaniments and reduced to dimethyl and monomethyl and sometimes probably to xanthine itself." Now, I want to know on what you base that statement, or if you wish to go on record as making the statement that caffeine is reduced to xanthine as such.

A. I said probably, and I am willing to stand by that statement.

Q. Does that mean you have made any experiment to determine that?

A. No, sir; I would not say probably if I had made an experiment.

Q. What do you say?

A. I would not qualify it, I say. I would not qualify it and say probably if I had made experiments.

Q. And as to the amount of caffeine that might be given and the avenue of administration — they are two factors that you mention in determining whether or not caffeine was a poison. Now, I will ask you if that is not too broad and if you should not take into consideration in that connection the age and the size and the temperament of the individual.

A. Oh, I suppose so; yes.

Q. So that what might be a moderate dose for one individual might be a very immoderate dose for another?

A. I suppose so.

Q. Your deposition was taken at Ann Arbor some weeks ago, and in comparing the effects of cocaine and caffeine, did you not say this as to cocaine: "It is a more powerful poison," meaning it was more powerful poison than caffeine, — "and the person who uses it has a tendency to increase the dose"?

A. I think I made that statement. It is a true statement, at least.

Q. In one of these Zenetz cases — I have the entire article translated, of which I believe you have seen a copy.

A. No, sir, I have not seen a copy.

Mr. Hirsch: That was not given to us until ten o'clock last night and it was taken right back.

Mr. Miller: It was agreed to.

Mr. Hirsch: No, sir; it was not agreed to.

Mr. Miller: I am sorry, I misunderstood it.

BY MR. MILLER:

Q. You are credited with stating that in the article by

Doctor Zenetz, treating of caffeine and caffeine poisoning, he stated that the heart was difficult to cut with a knife. Did you not incorrectly state the text of Doctor Zenetz in that connection?

A. I don't think so. I think he used the word "Mude," which means make one tired to cut it.

Q. Was not that an entirely different case from what was referred to by you?

A. It might have been.

Q. If you were wrong in that connection, which you say may be probable, of course the conclusion following with respect to that particular case which you drew could not be correct?

A. There might have been some other word meaning the same thing.

Q. But if it be true that the author did not state that, then the conclusion you drew that the heart was fibrous might be wholly incorrect?

A. Certainly, if I misread the article the conclusion might be incorrect.

Q. If a doctor of Doctor Zenetz' standing reported on a case and simply reported that the heart was cut with difficulty, that would mean as compared with ordinary or normal hearts found in an autopsy?

A. I should interpret that to mean that it did not cut as easily as normal tissue and that the tissue was abnormal.

Q. Certainly. There are two kinds of stimulation, one artificial and one natural or normal?

A. Well, I guess we could have that classification.

Q. Now, to which class does drug stimulation belong?

A. It depends upon the circumstances whether it is natural — of course, all stimulation is artificial in a sense.

Q. Then we do not have but one class if that is true?

A. It is all artificial to some extent. If we make an effort to walk the effort is artificial.

Q. Then what did you mean by saying we might have two general classes?

A. We might say that one is more artificial than the other.

Q. Is drug stimulation more artificial than the other?

A. Depending on what you mean by drug stimulation. I would say that drug stimulation might be abnormal just as I would say that eating or anything else might be abnormal.

Q. But natural stimulation would be by ordinary eating?

A. And drinking beverages.

Q. But you don't mean alcohol?

A. A certain amount of alcohol — a certain amount of stimulation might come from alcohol.

Q. But do you mean to put alcohol in a class that produces normal stimulation?

The Court: That is immaterial.

Mr. Miller: Not from our point of view, and I reserve an exception.

The Court: You may note an exception. You can examine all you want on caffeine, but we have had enough of alcohol.

Mr. Miller: I understand that that portion of his testimony dealing with whether or not the administration of caffeine would have an injurious effect was stricken out on yesterday.

The Court: The statement of the witness that in his opinion it would have a beneficial or injurious effect — whenever he expresses his opinion, that was excluded, but the statement of fact that he made with reference to it was not excluded. I think that ruling should be qualified in view of what has occurred to correspond with the ruling made when the Government witnesses were on the stand. Wherever a witness is a physician he may, in addition to stating the facts, state as a physician his opinion as to whether those effects would be injurious or beneficial to general health. I permitted the Government witnesses to state that certain things would be injurious to general health and I will now permit the witnesses on your side to state their opinion as to whether it would or would not be beneficial to general health. That would be, of course, limited to physicians or persons qualifying themselves to express an opinion as to general health.

BY MR. MILLER:

Q. When your deposition was taken at Ann Arbor, did you not state ——

The Court (Interrupting): Let me state — I have not yet made the suggestion to you that I made to Mr. Sizer and I will now do it. I do not think it is well to ask a witness first whether or not he did not state a certain thing. You should ask him as to the matter and generally he will state just what he said before and you will save that time. If he states it any way differently then you can ask as to the former statement.

BY MR. MILLER:

Q. State whether or not you have heretofore stated —

The Court: That is just what I say not to do. Just ask him now as to the facts that you want to prove. If he

makes any different statement you can bring out the contradictory statement in his deposition, but it is not competent to start out by asking him — didn't you in your deposition say so and so.

BY MR. MILLER:

Q. What reason, if any, have you for recommending or for concluding that the average man might take a cup of coffee in the morning?

A. I know from my own personal experience that is beneficial to me. I feel that it is, and so far as I can judge from patients and those that have been under my observation, they feel better if they have a cup of coffee.

Q. Is that or not the cause of the fact that they do not sleep long enough and do not get over the fatigue that results from the previous day's work?

A. No, sir; I think it is quite often due to the fact that they may get too much sleep.

Q. In giving your deposition at Ann Arbor when asked on that point, were you not asked this question and did you not answer it this way:

"Q. What is the object of relieving the fatigue otherwise than naturally, that is, by rest and sleep?

"A. I think that the majority of the people do not get over their fatigue in the morning. I think it is when we feel fatigued most, when we wake up, and I think that is when coffee does the most good."

A. That is true and I still make it.

Q. The object of taking coffee is because they do not get sufficient sleep, and therefore do not get over the fatigue?

A. No, sir. I think you take coffee in the morning to wake yourself up when you need to be waked up.

Q. How do you reconcile that statement with the statement just accredited to you that people do not get over their fatigue in the morning?

A. I mean, do not get over the sleepy feeling.

Q. You mean, "sleepy feeling" by "fatigue"?

A. Yes, sir.

Q. Is that fatigue in the sense in which you use it?

A. No, sir; not entirely. I must admit ——

Q. How many senses ——

Mr. Hirsch: Let him answer. He has not finished his former question. He said: "Now I admit," and you interrupted him.

The Witness: A man may feel fatigued from work. He may get up in the morning very much fatigued because he has slept too much and probably I should have used some other word than fatigued. I admit that that was a loose

use of the word "fatigue" — it should have been "drowsy."

BY MR. MILLER:

Q. In one sense, when you said fatigue you meant drowsy?

A. Yes, sir.

Q. And in the other sense in which you meant fatigue, did you mean tired?

A. A tired feeling.

Q. Then you have used it in two senses?

A. I think I have.

Q. How many cups or how much caffeine do you state that you recommend to an average robust person, or that you think is beneficial? I believe you said it was beneficial.

A. I think most persons can and do drink three cups of coffee a day without harm, and many of us drink more than three cups a day.

Q. Now, when your deposition was taken, was not that question, in words substantially, put to you and didn't you state that you thought most persons could take one cup?

A. Yes, sir; they can take one cup if they can take three.

Q. Now, if, when your deposition was taken on February 1, 1911, you put the limitation at one cup ——

A. (Interrupting.) I didn't put the limitation at one cup.

Q. Didn't you in words in substance then state that you believed the everage man could take one cup?

A. Certainly.

Q. What did you mean by that if you didn't mean it as a limitation?

A. I did not mean it to be a limitation. If I say a man can take one cup it does not mean that he cannot take two.

Q. When you were asked to state then and there what could be taken by an average robust man and you said one cup, if you thought he could take more why didn't you state it?

A. If you will read that deposition you will find I did.

Q. I have it here and I do not see it.

A. That is my remembrance.

Q. Now then, this question was asked you:

"Q. What amount do you recommend them to take?" after you had stated that you thought people were better for taking a certain amount ——

"A. Well, a cup of coffee in the morning, anyhow; from one and a half to two grains of caffeine, as usually pre-

pared.

"Q. Is that the extent of your recommendation for a normally healthy person?

"A. I do not know that I put any special limit on it. Of course, I advise against the excessive use of coffee as I do against the excessive use of everything."

Now, when you were specifically questioned as to the amount that could be recommended and that you thought could be taken, if you meant that more than one cup could be given, why didn't you say so?

A. If you read on I think you will find I did say so.

Q. I do not find it in this connection, and if counsel find it I shall be obliged to them.

Mr. Sizer: You are asking for it and here it is.

Mr. Miller: What page is it on?

Mr. Sizer: I am reading from the printed copy and it is not paged correspondingly with yours:

"Q. Is not that the standard you have fixed and do you not mean so to be understood?

"A. No, sir; I do not want to be understood that way. I mean to be understood that I think the average person is benefited by one cup of coffee in the morning. Now, whether he should take more depends on the individual, etc. I do not think as a rule that three cups a day hurts the average man."

BY MR. MILLER:

Q. That is what you believe might hurt him, but I am talking about what would be beneficial, and that is what I asked you about as the stenographer's notes will show, and I understand you to say that more than one cup can be taken with beneficial results?

A. I think a majority of the people take more than one cup with beneficial results.

Q. Then when this question was put to you why didn't you say so?

A. I think I did say so finally.

Q. Do you think that extract read by adverse counsel was a portion of your deposition to which you refer now?

A. I think so.

The Court: I think the cross-examination has been exhausted on that subject. It does not contradict anything he has said and it should be limited to contradictory statements.

Mr. Miller: We would like an exception.

BY MR. MILLER:

Q. Don't you know or believe that the effects of caffeine on children are highly detrimental?

A. The word "children" is quite indefinite. I should say under five or six years of age or even seven years of age caffeine should not be given to children.

Q. Why not?

A. Because there is already in their bodies a large amount of tissue which furnishes the xanthine bases. The glanular tissue in the child is much greater in proportion to his size than it is any other time in his life, and he gets the xanthine in his body and often gets them in excess, and you will often find xanthine in the kidneys of a child. Nature has provided children with the xanthines in their free food as long as they are nursing.

Q. And you do not think it should be given to them up to seven?

A. To be safe I would say up to seven, certainly not before, and possibly not for three or four years later. I think nature has pointed that out very distinctly.

Q. You have never gone on record in any of these societies of which you are a member or before which you have read papers, as advocating the use of caffeine, have you?

A. I think in that essay on healthy homes and healthy foods I have advocated the use of tea and coffee.

Q. Were you not asked to state whether you had ever recommended its use except as a drug ——

A. (Interrupting.) I must admit I did not think of that essay at that time and there are other things that I did not think of just then.

Q. If you have ever made a recommendation of it, it is in this treatise I have read to you?

A. I lay out the daily dietaries of the patients at the hospital and it always contains coffee.

Q. I am speaking of public recommendations you have made as a member of societies to which you have belonged.

A. I do not remember that I have published any other articles than that, but I prescribe the daily diet of my patients.

Q. You prescribe morphine for some?

A. Yes, sir; but I prescribe caffeine for all.

Q. I thought you said you did not prescribe it for children.

A. No, sir.

Q. Then you are mistaken as to that?

A. Yes, sir, to that extent and I am glad to be corrected.

Q. Is it not a fact that you do not go to that hospital but about once a month?

A. Oh, yes; I go to the hospital oftener than that.

Q. When you say that caffeine would not be recom-

mended for a child under six or seven years of age, or that you would prohibit or restrict its use, you mean it might have a deleterious or bad effect on it?

A. I think so.

Q. Caffeine is recognized as a drug?

A. Yes, sir; it is.

Q. Are you acquainted with any reputable treatises that advocate the use of caffeine — I mean medical treatises — that advocates the use of caffeine for general consumption by individuals?

A. All works on hygiene and dietetics, so far as I know, have either coffee or tea among the foods recommended for daily diet.

Q. Were you asked that question at Ann Arbor?

A. I think I was.

Q. Was not your answer "I don't know that I am"?

A I believe it was.

Q. So you forgot that, then?

A. Yes, sir.

Q. You made a mistake then?

A. Yes, sir.

Q. You don't know whether you were mistaken then or now?

A. Yes, sir; it is simply that I did not think wide enough then; I was not wide enough awake then, I suppose.

Q. Asked to define the minimum dose of caffeine for an adult, what would you say?

A. You mean therapeutically?

Q. Yes.

A. I believe the dose given in the Pharmacopoeia is one grain, which is perfectly absurd. I would say from three to five grains would be proper, except for children.

Q. You are a member of the medical association which adopted that Pharmacopoeia?

A. I am a member of the American Medical Association, yes, but there are a great many things that that association does of which neither you nor I would approve.

Q. Is arsenic a poison?

A. Oh, yes; I think it is poisonous.

Q. It is found normally in the body?

A. That is a question. I would be inclined to say that in very small traces arsenic is found normally in the body.

Q. Is strychnine a poison?

A. It is.

Q. Because a certain drug does not produce an observable harmful effect does not at all prove that it is not deleterious, does it?

A. No.

Q. Is it not true that even one or one and a half grains of caffeine to many persons prove harmful?

A. That might be. I should doubt it very much but still I would not deny the possibility of its being true.

Q. Did you not state that when persons were not in perfect health that that might be true?

A. It might be true.

Q. Don't you know that the use of caffeine is very frequently prohibited and should be prohibited in many cases entirely?

A. I have no doubt there are many people who would not take caffeine at all; at least some. I do not know how many.

Q. You did say many?

A. Yes; taking the world over, there must be a great many.

Q. It is not true that in a very great many children, up to the age of twelve years, the effect of the consumption of caffeine would be harmful?

A. I said under seven years I prohibit it altogether. Above that there may be some and no doubt there are many to whom it should not be given.

Q. In fact, is it not true that you could not say or would not say that any of them should receive its administration unless they would be in perfectly normal health?

A. I would not want to go that far.

Q. Did you not go that far when your deposition was given?

A. I don't think so.

Q. Were you not asked this question:

"Q. And is it not true that would be in a very large percentage of cases?

"A. I don't know how large a percentage that would be true in.

"Q. But your opinion is it would be true in a great many?

"A. Yes; in a great many children, but in perfectly healthy children I do not think it would be."

A. That is substantially what I have answered here. I do not think there is any contradiction. I did not intend it in any meaning that would contradict anything that I have said here.

Q. Is it not true that the normally healthy person does not require what might be termed artificial stimulation?

A. I think to go into that in detail would lead me to say that "normally healthy people" is a wide variation and that man is a machine and that the purpose of the machine

is to work. A locomotive that runs ten miles a day may be perfectly normal. A locomotive that runs fifteen miles a day may be perfectly normal. So a man who is at rest is normal and a man who is at work may be normal, and still he is wearing out tissues faster when he is at work than when he is not.

Q. The fact is that mankind may be likened to a sort of automatic piece of machinery that of itself repairs itself in normal process?

A. Yes, sir.

Q. Now I ask you in that normal process receiving the normal amount of sleep and in normal health, if that individual, that mankind required artificial stimulation?

A. I do not see how man could live without artificial stimulation. Of course, all his thought and study and reading is artificial stimulation.

Q. But sunshine does not come from mankind, but from nature?

A. Yes, sir.

Q. And that is natural stimulation?

A. Yes, sir. So does caffeine; it comes from nature.

Q. But not until man extracts it by processes?

The Court: I think the question in that form is too motaphysical. You may get to concrete instances about caffeine if you wish.

Mr. Miller: My object in asking that is because the Doctor stated there were two kinds of stimulation, natural and artificial.

The Court: The question before us is one of fact as to the effect of caffeine.

BY MR. MILLER:

Q. I want to put the question in this form: Does the normally healthful individual receiving normal food, normal sleep and taking normal exercise, require artificial stimulation?

A. If you mean by caffeine I could certainly leave that out. There is no doubt a man could leave that out but he feels better and is able to do more work with it. That is my opinion without doubt.

Q. Do you class caffeine as an artificial stimulant in that division of yours or not?

A. I think caffeine is as near a natural stimulant as you can get. I do not know of any beverage which is so near a natural stimulant as caffeine.

Q. But you are not prepared to say whether it is or is not?

A. No, sir; I have no absolute knowledge on the subject.

Q. If you give caffeine when it is not required, it becomes injurious and harmful?

A. I should not like to make that statement. You may give an excess of caffeine and might give it to people who might be injured by it. There is no question about that.

Q. Was not that direct question put to you at Ann Arbor in these words:

"Q. And in the same way with caffeine, if you give it and it is not required it becomes injurious and harmful?" And your answer was:

"A. Yes, sir."

A. Yes, sir. "When it is not required" — that is capable of several meanings.

Q. But that was your answer?

A. Yes, sir.

Q. And you stand by that?

A. Yes, sir.

Q. By "harmful" you mean deleterious?

A. Yes, sir.

Q. You hold that a man is his own best physician in many respects?

A. I do. Certainly about his food and his drink.

Q. By coca is generally understood the leaf of the product of the coca plant, is it not?

A. I think if I were talking to a lot of medical men I should understand it to be the coca leaf. If I went into a grocery and asked for coca I would expect to get chocolate.

Q. You mean, you would expect to get cocoa?

A. Yes, sir.

Q. But if you were talking about coca?

A. I don't think there is enough difference in the pronunciation for many people to see it. If I go to a grocery and went into the grocery and asked for coca, they would give me Baker's Chocolate.

Q. But that does not answer the question.

A. I want to answer it fairly.

Q. What I mean is, if you call for coca, don't you know that that implies the leaf?

A. It depends on where I would call for it.

Q. Didn't you state in giving your former deposition that coca, by that term was generally understood the leaves?

A. Yes, sir. I think when you speak of the coca tree or any product of that you mean the leaves. The word coca means several things.

Q. If you have so many views of it when you are asked

here, why didn't you give them in Ann Arbor instead of giving a straightforward answer "yes"?

A. I did give a straightforward answer. When I speak of it medically I mean coca.

Q. But you were talking to a lawyer when you were talking to me?

A. Yes, sir, but you were an expert on that subject.

Q. No, sir, I am not. I wish I were, to cross-examine you.

The Court: The things that the witness did not state are not material. It is a question of what he did state. There must be some limit to this cross-examination.

BY MR. MILLER:

Q. What is generally understood by the term coca is the leaves?

A. Yes, sir; among medical men.

Q. But you did not put that limitation on it when you were asked that same question in Ann Arbor?

A. No, sir; I don't think I did.

Q. You were present in the court room when Doctor Rusby was examined?

A. Yes, sir; I was.

Q. Are you sufficiently acquainted with Doctor Hyde's work on nutrition to say whether it is standard?

A. In a general way I should say it was standard. That does not mean that I would approve of everything in his work, of course.

Q. He was the first man who worked out the manner of ascertaining the income and outgo of nutrition, was he not — the units represented by the income and outgo?

A. I think that was the elder Hyde who did that. This is his son.

Q. But one of them worked that out?

A. Yes, sir; the old man.

Q. And that has been accepted as the standard since?

A. Yes, sir.

Q. Are you prepared to state definitely the percentage of caffeine in cocoa?

A. No, sir, I am not. Not from my personal knowledge.

Q. Did you ever conduct any human experiments with caffeine? That is, experiments on humanity?

A. No, sir.

Q. Why not?

A. I never had occasion to.

The Court: That is immaterial and you need not go into that.

REDIRECT EXAMINATION,
BY MR. SIZER:

Q. You were asked whether you were aware of any work on food that recommended the use of caffeine and caffeine-containing substances. Are you familiar with Bunge's Physiological and Pathological Chemistry?

A. Yes, sir.

Q. Do you know whether or not that work recommends caffeine-containing beverages as food?

A. I think it does. It has been a long while since I read it.

Mr. Miller: On the examination of our witnesses we were not permitted to offer them books to read from.

The Court: On the contrary, you were allowed to offer lists.

Mr. Miller: When the counsel called for them.

The Court: Oh, no. The witness said a great many authors recommended tea and coffee in diets and I allowed your witness when he was called on for authorities on cross-examination to give a list.

Mr. Miller: Then I withdraw the objection. I did not recall that that had been done.

Q. I will ask you, Dr. Vaughan, to prepare a list of food authorities on foods and dietetics which recommend or include in their list of proper foods caffeine drinks, and we will submit the list of them to opening counsel, and I will say that we have Prof. Bunge's work here if you like to see it; and another one we have — are you familiar with Sherman On Food and Nutrition?

A. I have seen the book and read part of it.

Q. That is a very late work is it?

A. Yes, I think so.

Mr. Miller: You mean it shows foods?

Mr. Sizer: We have the book and submit it to you.

BY MR. SIZER:

Q. Now, you were also asked on cross examination if you knew any authorities that stated the length of time tea and coffee and caffeine-containing drinks had been used. I want to ask you if you are familiar with Hutcheson on Foods and Dietetics?

A. I know the book in a general way.

Q. Now, I want to hand this to you and ask you if you find anything on that point there — I have marked the places there with respect to the use of tea and coffee.

The Court: He was asked the specific point whether he knew or not and the witness said that tea and coffee was used some three or four hundred years in Europe.

Mr. Sizer: That is what I am offering this book for.

The Witness: Shall I read this.

The Court: You are asked the question whether the book does show that fact?

The Witness: It does show that fact.

BY MR. SIZER:

Q. What does that book show with respect to the introduction of tea and coffee into Europe?

A. Tea was introduced into Europe by the Dutch in 1610 and coffee introduced in this country (that is England) in 1652 by Sir Daniel Edwards, a retired Samarian, who set up his Greek servant in the Coffee House, first of its kind in London in St. Nicholas Lane, Cornhill.

Q. Now, doctor, with respect to the use of caffeine containing drinks in this country have you any statistical knowledge of a little trouble in Boston along in 1700, something about a shipment of tea?

Mr. Miller: I object to that: I didn't ask anything about that. I didn't ask a word about that; that is entirely irrelevant.

Mr. Sizer: I think he did ask the question as to how long tea or coffee had been used in this country.

Mr. Miller: I confined myself to coffee exclusively.

The Court: I think the court and jury will know about that ——

BY MR. SIZER:

Q. Now, Mr. Miller in his cross examination undertook, Doctor Vaughan, to divide stimulants into two parts, namely, normal and artificial —is that a proper division of stimulants or in other words are all artificial stimulants necessarily abnormal?

Mr. Miller: I object to that question as being suggestive, and not in response to reference to anything that I was permitted to ask about, your Honor would not permit me to enquire into that.

The Court: The exception is sustained on the ground that the question is leading. I do not see any value in an academic discussion of whether a given stimulant is called artificial or normal.

BY MR. SIZER:

Q. You stated, Dr. Vaughan that the quantity of caffeine, I believe you stated that could be taken would depend largely on the individual. State whether or not that is true with any food substance?

A. Yes, it certainly is.

Q. Now, this Zenetz article — you were asked on cross examination about that, as to the contents of it. I wish to send you up the report of that Zenetz article and ask you if that is the article that you referred to, and if it uses the word you stated on cross examination in describing the condition of that heart?

A. (Examining book.) The heart let itself be cut or cut with a knife only with difficulty or with effort.

Q. Now, that is the article to which you were referring on your exanmination in chief or on cross examination?

A. Yes, sir.

Q. Your attention was called on cross examination to a definition that you had given on some previous occasion of the term "poison" in which you describe it as a substance that impairs or destroys cell function. Now within that definition, doctor, is caffeine a poison, does it destroy or impair cell function?

A. I do not think it does when given in beverage doses.

Q. On the contrary, Dr. Vaughan, does caffeine as taken in beverage stimulate and enhance cell function?

Mr. Miller: I object to the skillful counsel forming the question in that way.

The Court: The objection is sustained.

BY MR. SIZER:

Q. Then I will ask you if it does not destroy or impair cell function what is the effect of caffeine taken in beverage?

Mr. Miller: I object to that.

The Court: I didn't get the question ——

Mr. Sizer: Now I will ask this question ——

Mr. Miller: Another point of my objection is the first part of that question — he leads right up to the point and suggests in the question if it does not do a certain thing what does it do? It is argumentative.

Mr. Sizer: I will eleminate the first part.

The Court: Yes, eliminate that; I do not think the form of the question is very material in examination of these experts.

BY MR. SIZER:

Q. I will ask you what is the effect of caffeine taken in beverage on cell function?

A. As I have already stated, caffeine stimulates the brain to a certain extent, the heart muscles, the kidneys, and therefore its effect is to highten or increase cell activity to a certain extent, if taken as beverage.

Q. Now, Mr. Miller asked you the question whether you could recommend the amount of caffeine that a man could

safely take in a day by the amount he produced in his body. Would that be the proper rule of regulating the amount of any food that a man could take?

A. I don't think so.

Q. Does a man produce any food product in his body?

A. I don't know that he does; he produces his own muscle and he may have at times to live on his own muscle but he certainly does not produce food — he does make a certain amount of fat in his body.

Q. That is the fat produced in the body?

A. Yes, sir.

Q. Could a man regulate the amount of meat and bread he would eat in a day by the amount he produced in his own body?

A. Certainly not.

Q. Are there a number of other food articles besides caffeine that contain xanthine producing bodies, and if so state a few of them?

A. Why, the meats that we eat contain more or less xanthine — some of them a great deal of xanthine yielding substances. This is especially true of sweet breads, Russell sprouts for instance, containing trace of xanthine bodies; I amagine traces of xanthine bodies are found in some other vegetables that we eat.

Q. You stated on cross examination that caffeine makes a man feel better taken moderately in the form of beverages. Is that sort of result injurious to the average man?

A. I think not.

Q. Does the qualitative effect of a substance of this kind depend upon the quantity taken and does it vary according to how it is taken?

A. Yes, sir.

Q. That is the qualitative effect of a small amount is sometimes different from the qualitative effect of a large amount?

A. Yes, sir.

Q. Now, this diagram was presented to you on cross examination — that represents a number of xanthine bodies, as I understand?

A. Yes, sir.

Q. You say that one of these xanthine bodies, namely paraxanthine is poisonous?

A. Yes, sir; they could be poisonous in large amounts, especially if given hypodermically or intravenously, and I think the most poisonous one is paraxanthine.

Q. And, on the other hand, there are a number of these xanthine bodies that are not poisonous in small amount?

A. Yes, sir.

Q. And when taken by the mouth?

A. I don't know that paraxanthine would be poisonous taken by mouth or not.

Q. For instance, theobromine, you have already testified is an alkaloid found in chocolate and cocoa?

Mr. Miller: If he has said it I admit the question is not competent, and if he has not stated it, it is not in proper form.

The Court: It is immaterial, it has been proven so many times.

Mr. Sizer: Yes, I think so.

BY MR. SIZER:

Q. You testified xanthine produced convulsions. Now in what way do xanthine produce that result?

A. I have produced convulsions in guinea pigs by giving xanthine, by injecting it into the abdominal cavity.

Q. Did you ever produce convulsions by injection, I mean by giving the xanthine by the mouth?

A. I never administered xanthine by the mouth.

Q. Now, referring to your work on cellular toxins, by Vaughan and Novy, their language was quoted (reading): "The muscle contracted more easily, and by large doses became permanently contracted, passing into a condition of coagulation like that caused by heat and cold." Now would heat and cold produce that same effect?

A. Yes, certainly if directly applied to the muscle.

Q. Just as xanthine if applied?

A. Yes, at least similar, I wouldn't say it was exactly the same.

Mr. Sizer: Now then all these articles you read from — do you introduce them in evidence?

Mr. Miller: Just the passage that I read.

Mr. Sizer: I think it would be fair if any passages are offered, that the articles should be introduced.

The Court: They may be submitted for your inspection, and if there is any part bearing on the particular subject or qualifying the meaning, you can offer that.

Mr. Miller: They were submitted weeks ago in this supplemental cross examination.

Mr. Sizer: Then I understand we may take these articles, and if anything in there we desire to offer in evidence we may do so.

The Court: No, that is too broad a statement of my ruling; I meant to state if you found in the article anything that modified or qualified the statement to which attention of witness was called on cross examination you

may read it. The other parts of the article will not be introduced.

BY MR. SIZER:

Q. Now, you were asked about the time you came here, doctor. Did a number of other eminent experts come along about the same time on the other side?

A. Yes, sir, Dr. Boos and Dr. Wiley.

Q. Doctor Boos and Doctor Wiley — any others?

A. I saw these gentlemen soon after I arrived; I don't know whether they came before I did or later.

Mr. Miller: We did not quite catch about the amount that was formed normally in the body. As I recall the witness was asked whether or not it would be a proper test to ascertain whether a certain thing would or would not be deleterious, meaning it in proportion to that quantity that was formed in the body daily.

The Court: Hardly that, as I recall it. He was asked whether the proper test of the fact was the amount formed in the body daily, the proper test of the amount of food to be taken.

Mr. Miller: I move to exclude that question and answer first, because it has not been shown that caffeine is a food.

The Court: I overrule the exception, that is a question the jury has to pass on.

Mr. Miller: In the case of preservatives, a certain amount of preservatives such as benzoic acid is consumed in food — that is used as a preservative—a certain amount of that is consumed in good ——

The Court: That, I think is foreign to the inquiry ——

Mr. Miller: My point, your Honor ——

The Court: (Interrupting) I know your point, or at least I think I know it; I think the question of whether benzoic acids or would be in food ——

Mr. Miller: (Interrupting) Trying to show it is a food ——

The Court: (Interrupting.) I overrule it — I think it is too broad.

Mr. Miller: Very well.

BY MR. MILLER:

Q. How do you directly apply heat or cold water to a muscle, doctor?

A. You cut out the muscle and apply it directly to it.

Q. And so, when you were referring in your book to the application of caffeine to the muscle, and to the effect such as would result from the application of hot or cold water, you meant by direct application?

A. Yes, certainly.

Q. And of course applying hot or cold water in that way would be very injurious.

A. Certainly.

Q. Oh, yes; you did not read the entire sentence in the Zenetz case, did you, Doctor, that was passed to you on redirect examination?

A. The Zenetz case, one of them, — I think I read it in that one case.

Q. I mean in this particular Zenetz case. It is a fact you did not read the entire sentence?

A. I thought I read the entire sentence, as far as I read it.

Q. Kindly take it and commence where you were reading and see if I give you a literal translation in English.

A. All right. (Looking at book.)

Q. (Reading:) At the autopsy, which was done the next day, they found the heart contracted like a fist, and it could be cut with difficulty with a knife; in a word, the heart was spastically contracted, which it is said to be in man in cases of caffeine poisoning."

A. Yes.

Q. That is the entire sentence?

A. Yes, sir.

(Witness excused.)

L. SCHAEFFER,

the next witness called on behalf of the Claimant, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION,
BY MR SIZER:

Q. Doctor, are you a member, or rather proprietor of the Schaeffer Alkaloid Works of Maywood, New Jersey?

A. I am its president.

Q. Your deposition was taken in this case several months ago?

A. Yes, sir.

Q. Last October?

A. Yes.

Q. Now, Doctor, do you make Merchandise No. 5 for the Coca-Cola Co.?

A. Yes, sir.

Q. From what substance do you make that Merchandise No. 5?

A. Of the Coca leaf and the Cola nut, and of dilute alcohol sir.

Q. What do you use the alcohol for, what is the purpose of putting in the alcohol?

A. To extract from the bodies mentioned the extractive matter.

Q. Do you use anything else in that compound except the extracts from the coca leaves and cola nuts and dilute alcohol?

A. No, I do not use anything to speak of, or essentially.

Q. Now just state the process, Dr. Schaeffer, by which you manufacture this Merchandise No. 5?

A. The process consists of two parts. The first part is to decocanize the coca leaf, the second part is to use the decocanized coca leaf and cola nut, both of which are in powdered form, to make the infusion, that is, the same extract made by percolation with dilute alcohol.

Q. Now, I want you to go on and give the details of the process, doctor, by which you get this extract from the coca leaves and cola nuts?

A. As stated, the first part of the process consists in eliminating the cocaine and also the other alkaloids from the coca leaf, from the coca leaves, which is not used in making the extract. This is done in the following way: The coca leaf is powdered in a disintegrator, that is a mill, making a great number of revolutions to reduce the coca leaf to powder. The powdered coca is then mixed with alkaline solution, that is with water containing small quantities of an alkali to make coca leaf slightly alkaline. This is done in a mixer which has been especially devised in my works for this purpose. This is carried out by hydro-carbon — this is an oil and this oil could not easily penetrate into the powder of coca leaf if the coca leaf would be made too moist; consequently, the volume of water has to be as small as possible to permeate the oil used later on in extraction to penetrate fully the powdered leaf. It is therefore, the water, to which alkaline is added, and which solution is sprayed into the powdered coca leaf in the rolling mill I mentioned is the minimum amount, must be the minimum amount of water — needed to liberate the cocaine and other alkaloids which are in the form of certain salts in the coca leaf from the salt combination. The rolling mill I mean the force of it is used to force the alkaline solution with great power into the powdered coca.

BY MR. SIZER:

Q. Is that a rolling mill?

A. Yes, sir, that is the mill consisting of cast iron rollers, having a great weight. These rollers exercise such a pressure to permeate the coca leaf uniformly with the alkaline solution. The coca thus alkalized is then filled into big percolators of cylindrical shape. The same having

a man hole on top and another man hole in front near the bottom. Now the percolators are perforated, iron bottoms, which are covered with cloth. The alkalized coca is filled into these cylinders and the cylinders are closed. Thereupon the hydro-carbon is run by gravity from a tank which stands — a collecting tank — which stands about four feet higher and is percolated through the coca. The object of this process is to extract from the coca, cocaine, and asociated alkaloids, which are in the coca leaf. In order to accomplish this thoroughly, the amount of about eight times the weight of the coca is used for said hydro-carbon.

Q. Is that the end of the process?

A. Not quite, — not quite. This extraction process takes several hours. The oil solution coming from the percolator then running into the big copper cylinder — in the same this hydro-corbon alkaloid solution is shaken; this is a solution of sulphuric acid; the latter takes the alkaloids out from the oils and renders the oils capable of being used again in the same process, after completion of extraction of the alkaloid extraction process, hydro-carbon staying in the percolator, is run off into a tank below the percolator. There is, however a certain quantity of the hydro-carbon adhearing to the coca leaf in the percolator. To remove the same a current of dry steam or about sixty pounds pressure is introduced into the percolator. The steam carries the remaining portions of the hydro-carbon off, so that after four hours all of the hydro-carbon has been carried away from the coca leaf. We have now in the percolator the decocanized coca which is subsequently used to make the extract No. 5.

The second part of the process consists in putting the decocanized coca which is taken out from the percolator by the front man hole together with powdered coca nut into large wooden tanks or into a large wooden tank, prior to the introduction of the coca and cola quantity of dilute alcohol has been filled into the tank. The proportions which are used in the process are as follows: 380 lbs. of coca leaf, 125 lbs. of cola nuts and 900 gallons of dilute alcohol of about twenty per cent strength is taken. The extract obtained is pasteurized in another tank by heating same to a temperature of about seven degrees centigrade. The pasteurized extract is then filled in wooden bbls. being Merchandise No. 5. I wish to make a few remarks regarding this method ——

Q. Go on.

A. This process takes all bodies of extractive matter— say brings instead of takes, bodies or extractive matter

which can be taken out from the coca leaf and from the cola nut into Merchandise No. 5 with the exception of alkaloids of coca leaf. The hydro-carbon which is used in extraction of cocaine and associate alkaloids from the coca leaf does not take any of the water extract substances out from the coca leaf, the same remaining in the leaf.

The Court: Water or volatile?

The Witness: I think it is right what I gave.

The Court: Water extract substances?

The Witness: Yes, sir; to explain it a little better you might say that there is a large percentage or matter in the coca leaf which can be taken out from the coca leaf by making a percolation with water or dilute alcohol. To make a water extract or an extract with dilute alcohol from the coca leaf means to treat the leaf with water or dilute alcohol so that this water or alcohol soluble substances are taken out. The amount or quantity of extractive matter in coca compared with the quantity of alkaloid in coca is considerably larger, perhaps twenty times as large as the latter.

The Court: You mean in bulk?

The Witness: In weight?

The Witness: Yes. In other words, the extractive of coca leaf which is done in the first part of above described manufacturing process takes only a very small quantity of substances contained in the coca leaf out, about one per cent only, whilst in the second part of the process, that is the proportion of the extract with dilute alcohol quantity of about twenty times as much is taken out from the coca leaf. This is essentially the process which I use in my factory to manufacture Merchandise No. 5.

(Thereupon at 12 o'clock M. Court took a recess until 12:20 p. m.)

AFTER RECESS.

Court met pursuant to recess at 12:30 p. m.

The Court: As I am about ten minutes late in getting back we will hold until 2:10.

L. SCHAEFFER

resumed the stand for further examination.

BY MR. SIZER:

Q. Now, Doctor, is this, the process you have described, the same process by which you have been manufacturing this Merchandise No. 5 since you have been making it for the Coca-Cola Co.?

A. Yes, sir.

Q. And about how long has that been?

A. About eight years.

Q. Are you yourself the inventor of that process?

A. Practically yes.

Q. Do you use machinery especially devised by yourself for the purpose of making this extract?

A. All of the machinery is practically of my own invention.

Q. I want to ask you, Doctor Schaeffer, have you prepared a statement from statistics in the Bureau of Statistics at Washington, a statement showing the total consumption of caffeine in beverages in the United States, for the year 1909?

A. Yes, I have.

Q. Now, will you please file a copy of that compilation that you have made?

Mr. Miller: We except to that, first, because it is not the best evidence, and second because it is not competent.

Mr. Sizer: So far as the best evidence is concerned, the Court knows as a matter of law all about everything that is in this bureau of statistics. (Reading.) "Courts know the facts generally known to have been established by statistics in much the same way and for much the same reason that they know the facts set forth in the almanic. The Court cannot verify the facts; but where statistics are official, prepared by public officers acting under provision of law, the duty of the Court to know the law and recognize the existence of acts done under it stimulates and endorses the Court's knowledge of the facts established by such statistics, in which the community shares.

The Court: Is that the rule; I have never seen that question passed on.

Mr. Sizer: Yes, and "While a witness cannot testify to the existence of a fact of which he has no personal knowledge, he is not necessarily precluded from stating what certain unsworn statements show, an, assuming them to be correct, what they prove."

Now a note to that text is as follows: (Reading.) "Where evidence states the result of voluminous facts, or of an inspection of books and papers which cannot conveniently take place in Court, the objection of hearsay does apply.

The Court: If you have the original pamphlets you can introduce those statistics so counsel may have an opportunity to discredit the statement.

The Witness: The statistical figures which were given to me by the Bureau of Statistics in Washington I calculated the quantities of caffeine that they represent ——

Mr. Miller: (Interrupting.) I object to that.

The Court: Unless it appeared in some public document the witness' opinion wouldn't be competent ——

Mr. Sizer: Let me see what you have Doctor?

The Witness: These are official ——

The Court: (Interrupting.) I don't think it is very material, the Court and jury judicially know the immense consumption of beverages containing caffeine.

Mr. Sizer: Your Honor judicially knows, and inasmuch as your Honor does judicially know it, I submit we can put a witness on the stand and make a compilation from those figures.

The Court: If they are published in any government work he may make that compilation but I don't think it proper to permit him to make it from figures given him by an individual at all.

Mr. Miller: They use, they admit, caffeine, extensively in coca cola, and we are not disputing that, but the point of my objection is I have no opportunity ——

The Court: (Interrupting.) I have ruled that it was not the proper way.

Mr. Sizer: I think your Honor we have a number of these tables.

The Court: You may offer those, and they may be used to make compilations for the convenience of the Court and jury ——

Mr. Sizer: All right.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. As popularly used, are coca and coca leaves synonomous?

A. Yes, sir; Coca is a preparation of coca leaves and we use the word coca instead of coca leaves.

Q. As popularly used, coca and coca leaf is synonomous?

A. Yes, sir.

The Court: Has he not been examined as to that in his deposition?

Mr. Miller: I didn't understand that he had.

Now, your Honor excluded certain things because we had not proven his process of manufacture.

The Court: That is all admitted now. There may have been some other exception, but as to the objection made on the ground that the process was not stated, in view of the fact that the witness has now stated the process, that evidence is admitted, and that same ruling applies to the statements of the two experts yesterday.

Mr. Sizer: Dr. Mallet and Dr. Caspari, I understand

that their testimony is now admitted.

The Court: The things that were excluded in their testimony because the specific process was not stated, are now admitted, but so far as that was the only objection made. Where other objections were made and sustained, those still stand.

Mr. Miller: But we may have the right to recall them for further cross-examination.

The Court: You may.

BY MR. MILLER:

Q. Is the caffeine which you supplied to the Coca-Cola Company, made from tea?

Mr. Sizer: That has all been covered by the deposition.

Mr. Miller: I think not.

Mr. Sizer: He said it was made from sifted tea leaves.

The Court: What is the materiality of that. Does the Government say there is any difference between the caffeine effect when produced from tea than from other substances?

Mr. Miller: We think not, but adversary counsel seem to think so.

The Court: I think not.

BY MR. MILLER:

Q. Do you mean that caffeine from tea and coffee is the same.

Mr. Sizer: Yes, or from the cola nut.

Mr. Miller: If it be the same thing, whether from the coca leaf or cola nut ——

Mr. Sizer. (Interrupting.) The same thing.

The Court: Everybody agrees that the effect of caffeine, when isolated as caffeine, is the same, no matter what it is derived from.

Mr. Miller: Chemically the same, but the point I make is they may content, and I apprehend, do contend, because there is a percentage of caffeine in the extract of cola, that if the caffeine added in the works at Atlanta comes from cola, also, it is not an added ingredient.

The Court: That may be a matter of argument, but you all agree that the effect of caffeine is the same, no matter whence the caffeine is derived.

Mr. Miller: I wish to show by this witness that a portion of the caffeine which he shipped to this manufacturing establishment at Atlanta, is not extracted from cola but from tea.

The Court: You have already shown that.

Mr. Miller: It is conceded that I have shown that?

Mr. Sizer: Some from the leaves and some from coffee, that was all read yesterday.

Mr. Miller: Then I shall not pursue that any further.

BY MR. MILLER:

Q. Do you know anything respecting cocaine, a substance found in the coca or cola?

A. I cannot recollect. I have given in my deposition, October 19th, I think ——

Q. But I ask you if you have discovered anything respecting that since you gave that deposition?

A. I have no other facts.

Q. You have made no discoveries in that length of time. Now, have you since that time ever made any attempt to isolate any of the other so-called extractive bodies and substances from the leaf except the cocaine?

A. No, sir.

Q. Therefore you do not know what enters into Merchandise No. 5 as it is prepared and sent to Atlanta?

A. No, sir.

Q. As an isolated substance?

A. No, sir.

Q. You know what a poison is?

A. Yes, sir; in a general meaning.

Q. Now, in this process of putting the coca through, what kind of hydro-carbon do you use?

A. I beg to ask whether this is materially in connection with this case, to give the hydro-carbon which I use. As the hydro-carbon is eliminated before the coca leaf is put into the extraction with dilute alcohol, how is it that important?

The Court: Of course, I take it that no one wished to injuriously affect the Doctor's process, or its value to him, so far as extracting cocaine. Unless there is some reason to believe that the hydro-carbon may make a difference in the result, there is no necessity to press this question. And if so, it may be well to let the government chemist to know what it is, and if they may do so.

Mr. Miller: Yesterday, we offered to take Dr. Schaeffer's statement about it privately under oath, and counsel preferred to give it publicly. Our chemists say there are numerous hydro-carbons that the process which he is describing of bringing this leaf in contact with the hydro-carbons, will give varying results, depending on the hydro-carbon. We are prepared to demonstrate that, and if I cannot ask that, I cannot go further. I am perfectly willing to do that in private. I offered yesterday to do it in private.

The Court: That is not strictly legal, but if counsel for the Government are willing to do that, I will allow it to be done.

Mr. Miller: I am quite willing ——

The Court: I understand your position.

Mr. Miller: I have here Wigmore in which he says in this day and time when parties can protect themselves by copyright and patent, that they are not to be allowed to refuse to state those things.

The Court: I understand.

Mr. Sizer: I would just as soon have them ask the witness on the stand.

The Court: Would you prefer to give that information privately or on the stand, Doctor? If it is given privately and the Government chemists find it is material, it would become known, but if the witness states he wants it done privately, I will allow it.

The Witness: I am willing, if the Court decides for me to give it privately, to do it.

The Court: You prefer that?

The Witness: Yes, sir.

The Court: That may be done. Now, it is understood that if the information given becomes material, they will use it in this case, but unless it is material, it will not be used.

Mr. Miller: I do not want to inflict unnecessary delay on the Court or counsel, but if I postpone that, I might as weil postpone all and take this matter with a stenographer privately and proceed with some other witness now.

The Court: That may be done. I want to make the position of the Court clear in that matter. Of course, as a matter of right, so far as is necessary for this case, the Court will insist upon publicity, but if it is not material this witness's business and manufacture of cocaine has nothing to do with this law suit, it should be kept secret.

The witness was here withdrawn from the stand.

JOHN M. McCANDLASS,

the next witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Give your full name.

A. John M. McCandlass.

Q. Where do you live?

A. Atlanta.

Q. What is your profession?
A. Analytical chemist.
Q. How long have you been an analytical chemist?
A. Some twenty-five years.
Q. Where were you educated?
A. Partly in South Carolina, partly in Georgia, and partly in New York.
Q. Have you ever had any official position with the State of Georgia?
A. Yes, sir; I was state chemist of Georgia for about ten years.
Q. Have you made any analysis, and if so, where, and how many cups of coffee to ascertain the contents thereof, and if so, what were the contents?
A. Yes, sir; I analyzed a number of cups of coffee I bought in restaurants in the city of Atlanta, this work being done some two months since.
Mr. Miller: I want to interpose the same objection to that.
The Court: Yes, the same objection and exception will be understood to be preserved all the way through. Now, Mr. McCandlass, before you bring that out, state when you went to get the samples what you asked for and what you got.
The Witness: I went into the restaurant and sat down at a table and called for a cup of coffee, and when they brought me that cup of coffee, I took out a flask from a basket, I had previously pasted a label on the flask, and I took out a separatory funnel and poured the coffee from the cup through the funnel into the flask and stoppered it up and labeled it.
The Court: Did you ask for coffee with milk or straight coffee?
The Witness: I asked for a cup of coffee, with milk, and they brought me the coffee with milk, and I discarded the milk and used the cup of coffee.

The Court: Was it a full cup of coffee, or one that would accomadate the milk that was brought?
The Witness: It was a cup of coffee that they served to their regular customers. In one or two instances they had put the milk in it before bringing it, and I asked them to take it back and told them I wanted it for a specific purpose. I did that because I found that milk interfered with the process of analysis, and I did not want the milk in it.

BY MR. HIRSCH:
Q. State the result of your analysis.

A. I went into about twenty-five restaurants and soda fountains in the city of Atlanta. I have them here by number.

No. 1 contained 165 cubic centimeters and the caffeine I found in that volume was 132.6 milligrams, or 2.4 grains.

Q. Before you proceed, I will hand you this memorandum to refresh your memory as to where those places were.

A. No. 1 Duran's Restaurant in East Alabama Street.

No. 2, I found 1.52 grains of caffeine. That came from Byrd's restaurant, West Alabama Street.

No. 3, 1.69 grains of caffeine, Child,s Restaurant, 85 Broad street.

No. 4, I found one grain of caffeine; Verner Restaurant on Broad street.

No. 5, two grains of caffeine; that came from Folsom's Restaurant on Marietta street.

No. 6, 1.82 grains; the Savannah Lunch Room, West Alabama street.

No. 7, I found 2.04 grains of caffeine, which came from Paul Smith's place on Broad street.

No. 8, I found only .64 of a grain, which came from the Silver Moon Lunch Room, Marietta street.

No. 9, 2.85 grains. This came from Jacob's soda fountain.

No. 10, 2.59 grains, and this came from the Aragon Hotel.

No. 11, I found 3.81 grains. This came from the Piedmont Hotel, and was a pot of coffee, containing about two cups.

No. 12, I found .99 grains. This came from the Kimball House.

No. 13, I found 1.82 grains. This came from the Baltimore Dairy Lunch Room.

No. 14, I found 1.92 grains of caffeine, and it came from Candler's Restaurant, the restaurant in the bottom of the Candler building.

No. 15, I found 1.81 grains of caffeine, gotten from the Peachtree Cafe.

No. 16, I found 2.45 grains of caffeine, and it was gotten from the Baltimore Dairy Lunch on Peachtree street.

No. 17, I found 1.51 grains, and it was from the Eagle Cafe on Marietta street.

No. 18, I found 1.45 grains of caffeine, from the Arcade Lunch Room on Peachtree.

No 19, 3.32 grains of caffeine; and this was from Duran's Restaurant on Edgewood aveneu.

No. 20, I found 2.12 grains of caffeine, and it was from the Manhattan Restaurant on Marietta street.

No. 21, I found 2.23 grains of caffeine from Verner's Restaurant on Peachtree.

No. 22, 1.43 grains of caffeine, and was from the German Cafe on Pryor street.

No. 23, I found 1.51 grains of caffeine, and it was from Elkin & Watson's Drug Store.

No. 24, .86 grains of caffeine, from Louis' Cafe next to the Chamber of Commerce.

No. 25, 1.54 grains of caffeine, from the American Cafe on Hunter street near the Court House.

Q. Did you make a calculation as to the average caffeine, content?

A. Yes, sir; the average was 1.92 grains.

Q. Did you make any other analysis of any drinks sold at soda fountains?

Yes, sir; I bought some chocolate syrup, such as they put into a glass of chocolate soda, and my results on those were—

Mr. Miller: I object to that. That is immaterial, we think.

Mr. Hirsch: We will withdraw that; no, if your Honor please, how about that—

The Court: I overrule the objection.

BY MR. HIRSCH:

Q. Proceed.

A. As to those samples of chocolate which I got at the soda fountains, I simply asked for the usual amount of syrup they would put into a glass of soda, and in every instance they measured it by the eye and gave it to me, and I transfered it to a bottle and carried it to the laboratory.

Mr. Miller: Without he is prepared to state that is the average, we think that is incompetent. He comes and asks me what I ordinarily do and I tell him, and we think that is removed from primary evidence and is not competent.

The Court: The objection is overruled. Of course, the matter is dependant on the number of samples. Just one case might not be worth much, but a number, the weight of the evidence is determined by that.

The Witness: I proceeded to analyze the samples of syrup and I measured them.

BY MR. HIRSCH:

Q. How many of them were there?

A. Six, I measured them before beginning with the analysis and then in each case I diluted them and proceeded to extract the alkaloid, and in No. 1, the volume

was 31 cubic centimeters per ounce.

Q. Where was that?

A. That was from Elkin & Watson's drug store. In that I found 11 milligrams of combined alkaloid, theobromine and caffeine.

Q. Reduce that to grains for us.

A. That is equivalent to point .17 of a grain.

In No. 2, 34 cubic centimeters, and in that I found .18 grains.

The Court: You did not separate the caffeine from the theobromine?

The Witness: No, sir; they were combined. I only separated in the last case.

The Court: Then I shall exclude that, combined alkaloids, caffeine and theobromine, and I will not allow Just one case.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. If I understood you correctly, in all cases you called for coffee and obtained free from any addition except possibly in one or two cases milk had been added and you discarded that and got coffee.

A. Got pure coffee without any milk or sugar.

Q. In that computation you made—this is, of course, reserving our exception if I may be permitted to cross-examine.

The Court: You may do that; that is understood.

BY MR. MILLER:

Q. In that computation you made, to ascertain the caffeine, content, how many cups did you say this pot held?

A. There was one pot at the Piedmont Hotel and the volume of that was three hundred cubic centimeters.

Q. How many is reckoned per cup, did you divide that into cups?

A. It was brought to me in a pot and I poured it into the flask I brought with me.

Q. You just took away the entire contents?

A. The entire contents of the pot?

Q. How many cups?

A. If it had been divided into cups, I would think two average cups.

Q. And that was an ordinary sized pot of coffee?

A. Ordinary sized pot of coffee. I paid fifteen cents for that pot, and ordinarily they only charged me five cents a cup.

Q. Now, about May 2, 1906, you were serving as state chemist of the state of Georgia?

A. Yes, sir.

Q. On or about that date, at the instance of the Coca-Cola Company, you wrote to the New York Observer, a publication, at the instance of the Coca-Cola Company, some of your observations with respect to Coca-Cola, did you not?

A. I received a letter from the New York Observer about that date, requesting me to send them a copy of the analysis, if I had made an analysis of Coca-Cola at any previous date, and I had analyzed Coca-Cola about two years previously.

Q. In your reply you said, "The worst thing I find in Coca-Cola is Caffeine, which is the active principle of tea and coffee." That is your language literally.

A. I think it is. That is about what I should have written.

Q. Did you purify the caffeine that you extracted from the coffee that you took in making these various analysis?

A. I use Paul & Conleys process. Those are English chemists who have done a great deal of work on that line.

Q. Can you give it to us, what is it?

A. Yes, sir; practically.

Q. Give it.

A. I took a measured quantity of coffee and shook it up with chloroform.

Q. How much did you take?

A. Fifty cubic centimeters of coffee and shook that up with a measured volume of chloroform. I used a little less chloroform than I did the coffee. I used about forty cubic centimeters of chloroform and I allowed the two mixtures to separate. I first added to the coffee before shaking, two drops of very dilute sulphuric acid. That is a part of the process. After the chloroform separated from the coffee I drew it off with a separatory funnel.

Q. In that separating process, what becomes of the sulphuric acid?

A. That remained in the aqueous liquid.

Q. How do you know that?

A. Sulphuric acid has a greater affinity for water and does not dissolve so well in ether.

Q. You mean to say when you dropped this into the mixture it did not have any affinity for that mixture and remained in the coffee?

A. It remained in the coffee infusion.

Q. Did it form a combination with the other compon-

ents or not?

A. It probably may have combined with the alkaloid caffeine but the caffeine is an exceedingly weak base and can be extracted even from its acid solution by agitation with chloroform.

Q. But did you know what became of the sulphuric acid when you dropped it in there?

A. It dissolved in the aqueous liquid.

Q. Then instead of saying it may have done so, you admit it did so?

A. Yes, sir; it dissolved in the aqueous liquid.

Q. It became a part of the mixture?

A. A part of the coffee infusion.

Q. Go on.

A. I then repeated the extraction with chloroform five times, I think it was.

Q. Did you drop the sulphuric acid?

A. No, sir; the original drop or two of weak acid was suffiicient.

Q. Now, you have gotten down to a drop or two. You said two or three at first.

A. It may have been. I didn't count them, but it was two or three drops probably of weak sulphuric acid.

Q. What do you mean by weak sulphuric acid?

A. About ten cubic centimeters in one hundred cubic centimeters, a ten per cent solution.

Q. Go on.

A. After separating all the chloroform with which I had shaken up the infusion, separating it by means of a separatory funnel, there was some cloudiness and some clear in the chloroform solution, and this I allowed to run into a very dilute solution of caustic soda, drop by drop, and as it passed through the column of dilute caustic soda it clarified and all the color in it was taken out and when it settled below the caustic soda it was perfectly white and clear and transparent. I then tapped off that chloroform solution into a flask and distilled the chloroform away from the substance which it held in solution. After the chloroform was all distilled off I put the flask into a water bath, heated to a boiling temperature, and allowed it to remain there for about two hours. I then took that flask out and weighed it and deducted the original weight of the flask from the weight I found, and that weight consisted of caffeine plus a little impurity, a little brownish waxy residue which still remained in that flask. Therefore, not considering that caffeine to be absolutely pure, I dissolved the residue in concentrated sulphuric acid and proceeded to determine the amount of

nitrogen by Kjeldahl's method.

Q. What is that Kjeldahl method?

A. That is the method which I am using in my daily work as a chemist. I do a great deal of work in the analysis of chemical fertilizers and tests for nitrogen in all sorts of substances,—cottonseed meal, fertilizers, etc.

Q. What is that method.

A. It consists in treating the substance with sulphuric acid tógether with the addition of potassium sulphate, and the sulphuric acid will destroy the organic matter. For instance, if you had sugar mixed up with any other organic substance, the sulphuric acid would destroy it. It oxydizes the sugar and converts it into carbonic acid, and it passes off; but if there were nitrogen present, as there is in caffeine, the sulphuric acid would convert it into ammonia and form sulphate of ammonia. After the oxydization process is complete, the solution is transferred to a glass flask and water and caustic soda is added and the mixture is distilled. The caustic soda converts the sulphate of ammonia in the sulphuric acid into ammonia, that is, it liberates it from the compound with sulphuric acid and by boiling you drive the ammonia out of the solution and it passes over into a resevoir containing a dilute solution of acid of known strength. The ammonia neutralizes a certain portion of that dilute acid of known strength and by a process of titration we can estimate how much acid was neutralized by the ammonia, and from that we can calculate the percentage of nitrogen in it originally.

Q. So that the result of your conclusion was based in part on estimation and in part on this very changing process?

A. That last process I described was simply a check on the accuracy of my first work.

Q. But that was an estimation?

A. And I made that estimation for the purpose of checking the accuracy of the first work.

Q. Is it not possible to weigh and ascertain definitely about those things?

A. Yes, sir, we did that in the first instances, but those processes by which we extract the caffeine from organic bodies and liquids are apt to carry a little more of the content down with them. For instance, caffeine occurs in white silky needles, and I noticed in the residue which I weighed that the caffeine was recognizable by that test; that is, that there were white silky needles, but there was mixed with the white silky needles a very little brownish matter when I turned the flask up to the light. On the

table it looked perfectly white, but up to the light it looked brownish, and that was not caffeine I knew.

Q. You knew it was nitrogen?

A. No, sir, I didn't know it was nitrogen.

Q. What did you think it was?

A. I thought it was a little waxy matter.

Q. Did you submit it to any test to ascertain whether it was nitrogen?

A. That is what I made the Kjeldahl determination for, to see whether it was nitrogen.

Q. I am talking about the brown matter.

A. The brown matter was mixed with the caffeine.

Q. But do you know what it was?

A. I do not know what the brown matter was further than what my supposition was that it was a waxy resinous body.

Q. If you don't know what it was, do you know whether it contained nitrogen or not?

A. No, sir.

Q. Then, after you put it through the process, you estimated the amount of caffeine there was?

A. Yes, sir; in each case, and I found a little less caffeine than I had weighed up, and therefore I judged that the caffeine always contained the same percentage of nitrogen, about 29 per cent.—and therefore I judged that the brownish matter I had weighed up along with the caffeine did not contain any nitrogen at all, because I got less nitrogen than I would have gotten or had obtained as much nitrogen as the caffeine.

Q. You mean to say when a chloroform solution of caffeine or other substances is allowed to run or drip through caustic soda, that any caffeine will be taken out by the process of percolation?

A. I found that process removed the impurities. It was made to get rid of the impurities and get rid of everything but pure caffeine, and I knew from the coloration that the caustic soda had taken out some of the impurities. That is the method pursued by chemists with tea and coffee.

Q. But that don't answer the question as to whether or not you knew that that percolating process did not either impregnate the residue which went through with part of the soda solution, or do you know to the contrary that part of the caffeine was not lost in the soda solution, or are you prepared to state positively as to either of those matters.

A. I am prepared to state positively, because before beginning the work, I tested the process with some chem-

ically pure caffeine which I had purchased at a drug store and weighed out a definite quantity of alkaloid and dissolved it in distilled water. To this distilled water I added a few drops of dilute sulphuric acid, just as I did with the coffee solution and I went through the same process and I also added a little caramel and distilled water to the solution in order to put some organic matter, and then after shaking up with chloroform just as I did with the coffee infusion, I dropped it through the caustic soda solution and obtained identically the original caffeine that I started with, plus a slight loss. I lost a little. I have not my figures here but I took about a grain of caffeine to start with and I got very slightly less than a grain when I weighed up my residue.

Q. How did you know that was caffeine you started with?

A. I tested it by the usual tests for caffeine, evaporation with hydrochloric acid and the crystals of pure potassium chlorate, evaporating that at a temperature of the water bath, in working over it a dish from which a solution of ammonia had recently been poured.

Q. That is the only test you gave?

A. That is the only test I made.

Q. To see whether or not it was caffeine that you started with?

A. Yes, sir; that is the usual test given for caffeine.

Q. Do you consume coffee yourself?

A. No, sir.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. The letter you wrote to the New York Observer, did you write that at the instance of the Coca-Cola company?

A. No, sir; I did not.

J. A. WESENER,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. SIZER:

Q. Where do you live?

A. I live in Chicago.

Q. What is your occupation?

A. I am a consulting and physiological chemist.

Q. I will ask you to state your educational qualifications and experience as a chemist.

A. I took my course in chemistry at the Michigan Agricultural College and the University of Michigan, and

graduated from the latter institution in 1888, receiving a degree of Pharmaceutical chemist. I entered the College of Physicians and Surgeons in 1891, which later became the Medical Department of the University of Illinois, and graduated from this institution in 1894, receiving the degree of M. D. I held the chair of Chemistry in the Medical Department of the University of Illinois for about twelve years. I am president of the Columbus Laboratory, which is an institution located in the city of Chicago and is devoted to research and analytical examination. The Medical department takes up Pathology, Bacteriology, Physiological Chemistry. We have a Food Department which goes into the study of foods, and we also make a study of wheats and other cereal products. In the Medical Department I receive specimens from physicians all over the United States for examination and for diagnosis. In the Food Department we have made a great many examinations for several of the Experiment Stations in this country and also in Canada. We also made one special research for the Secretary of Agriculture on durum wheat.

Q. Have you ever made any analysis of Coca-Cola syrup?

A. I have.

Q. How many?

A. Three or four, I should say.

Q. Do you remember the dates on which the analyses were made?

A. The first examination I made of Coca-Cola syrup was on April 15, 1907.

Q. For what purpose was that made?

A. For the amount of caffeine, and to see whether it contained cocaine.

Q. At whose instance was it that you made that examination?

A. I made that for Mr. Harper, an attorney in the City of Chicago.

Q. What did you find to be the percentage of caffeine on that analysis?

A. The syrup contained two-tenths of one per cent. of caffeine.

Q. About how much to the ounce?

A. That would be equal to about 1.21 grains to the ounce.

Q. You say you have made several other analyses; did the amount of caffeine you found on subsequent analyses correspond with the amount you found on the first one?

A. I made an analysis of fountain syrup which contained .21 of one per cent of caffeine, and of the bottlers'

syrup which contained .19 of one per cent.

Q. And the grains per ounce would be how much?

A. The first would be equal to about 1.21 grains and the last about equal to about 1.1 grains.

Q. Did you state where you got the first sample?

A. The one I analyzed in 1907 I went over to Fuller & Fuller's wholesale drug house in the City of Chicago and bought an original package of Coca-Cola syrup.

Q. Where did you get the sample you analyzed later?

A. I received two samples. May I consult my memoranda?

Q. Yes.

A. November 27, 1909, I received a bottle of Coca-Cola syrup, fountain syrup, from W. H. Foster, Chattanooga, Tennessee. This was sent by the Southern Express Company from Chattanooga, Tennessee.

On December 4, 1909, I received a bottle of Coca-Cola syrup called bottlers' syrup from J. F. Johnson from Chattanooga. This was also sent by the Southern Express Company.

Q. Those are the two samples you analyzed later on?

A. They are.

Q. Does chocolate contain caffeine?

A. It does.

Q. What percentage?

A. From .14 in the coca nibs from which the chocolate is made—from .14 of one per cent to .75 of one per cent.

Q. What else does chocolate contain, what other alkaloid?

A. The other alkaloid is known as theobromine.

Q. What is the proportion of theobromine?

A. Theobromine in the coca nibs varies from about one per cent. to 1.38.

Q. How are theobromine and caffeine allied with respect to their chemical composition and their physiological action?

A. Theobromine and caffeine chemically are very closely allied. Theobromine is a dimethylxanthine and caffeine is a trimethylxanthine. The caffeine acts upon the muscles and also the central nervous system. Theobromine does not act very much on the central nervous system but is a much more powerful muscle stimulant than caffeine.

Q. As a muscular stimulant?

A. Yes, sir; theobromine is the more powerful.

Q. Are both to a certain extent nerve stimulants?

A. Yes, sir.

Q. The caffeine is the most powerful nerve stimulant?
A. So I understand it.
Mr. Miller: I would like for you to confine yourself to scientific reading and research or to personal experience, one or the other. I object to that answer.

BY MR. SIZER:

Q. Do you know that to be so from your own ex periments or from your own research as a chemist?
A. I know that in part from my research work and in part from my reading.
Q. What is xanthine? I wish you would explain what xanthine is and what part it plays in the body.
A. Xanthine is found in the muscles of the body; that is, the muscular tissue, more frequently than in the cell, although it is sometimes found in traces in the cell. It is the end product, so to speak, not wholly the end product but I use that tentatively—it is the end product of the destruction of the nuclein as found in all the nucleus cells. Being the end product it is virtually the ash of the unclein metabolism. It is a powerful stimulant of the muscle and part of it may be burned up into uric acid.
Q. When caffeine is taken in the body through the mouth, what becomes of it?
A. The methyl groups in the caffeine are removed, it may be entirely in some cases and then again only one or two remain. Xanthine, however, to a certain extent is one of the end products of the caffeine in the body and that xanthine is identical with the xanthine which is derived from the destruction of the nuclein in the body.
Q. Now, is this breaking down process by which the methyl groups are split off from the caffeine, what is called oxydization?
A. I do not believe I would hardly call that oxydization. I think I would call that more a hydrolosis. It removes some of the methyl groups. The methyl groups may oxydize after being split from the caffeine group.
Q. If those methyl groups oxidize and split off in the body, does that produce energy?
Mr. Miller: I object. I do not think this witness is qualified as a physiological chemist.
The Court: Ask him about that.

BY MR. SIZER:

Q. State whether your training and research have qualified you to testify as a physiological chemist.
Mr. Miller: That is another conclusion asked for and I object to it.

The Court: I sustain the objection.

BY MR. SIZER:

Q. State what training and education and experience as a physiological chemist you have had.

A. I have been at that subject something like ten or twenty years. I have taught physiological chemistry in the Medical Department of the University of Illinois for ten or fifteen years. I have examined thousands of urines and thousands of stomachs and made a special research on the secretion of hydrochloric acid in the stomach; also made several researches into substances found in the urine and whether they rise from the urinary tract and many other—

The Court: You may proceed.

Mr. Sizer: Now you can read that question.

(The question was read as follows: "If those methyl groups oxydize and split off in the body, does that produce energy?")

A. It certainly does in a chemical sense.

BY MR. SIZER:

Q. What are purin bases?

A. The purin bases are also the xanthine bases. They are synonymous. Purin bodies are composed of carbon, hydrogen and nitrogen, and its chemical formula is very closely allied to the xanthine formula, and so when you speak of purin bases you mean the xanthine, or if you speak of the xanthine bases you mean purin bases.

Q. Are those purin and xanthine bodies taken into the body in a number of different foods?

A. They certainly are.

Q. Give instances.

A. They are found in the meats, sweetbreads and very richly in fish eggs, and in the cells of vegetable food, in the germ of growing plants.

Q. Do those purin bases play a part and if so what part, if you know, in the processes that go on in the body of metabolism, as it is called?

A. The purin bases are assimilated into the body. They are formed from the food taken into the body and also from the destruction of the cell that is continually taking place in the body. They are as far as I know the natural stimulants of the human body.

Q. Is that destruction of cell that you speak of a part of the regular function of the body?

A. It is, because it is constantly going on, a wear and tear and breaking down of regeneration. That is life.

Q. What is the sum of these processes called, the break-

ing down of the cells and the building up of the tissues from food — what is the general disignation of it?

A. First, hydrolosis, the digestion which is the breaking down and then building up, which is the breaking down into simpler compounds and then building those bodies into more complex compounds, and in such a manner as that they can be utilized by the body as food.

Q. What is metabolism?

A. Metabolism goes into the chemical changes brought about by what we sometimes speak of as the functions in the body.

Q. Is caffeine a poison in any sense, and if in any, what, and state your definition of poison.

A. The word poison — it is simply a question of definition.

Mr. Miller: Now, your Honor, does that mean ——

A. I have not finished my answer yet.

Mr. Miller: I want to interpose an objection unless he qualifies as a toxicologist and physician.

BY MR. SIZER:

Q. I thought that was covered by his former answer — but, state the extent of your education, qualifications and experiences as a toxicologist and physician. Although I do not know that that "physician" would be involved in the case — but I ask you to put it in.

A. I have testified in a great many murder trials in which there was poison and have made a great many examinations along those lines. We do that as part of the work in the laboratory. I am usually retained by the prosecution in those cases. I do not think I have ever testified but once, called by the defendant, in such a case.

Q. Have you read the literature on the subject of toxicology extensively?

A. Yes. I would not say extensively but I know much about the literature of toxicology.

Q. Have you received any degree of M. D.

A. Yes, sir; I am a graduate from the Medical Department of the University of Illinois, in 1894; also practiced medicine four or five years.

Mr. Sizer: Now you can read that question to him.

(The question was read by the stenographer as follows: "Is caffeine a poison in any sense, and if in any, what, and state your definition of poison.")

A. The word poison, of course, is a question of definition. There is no substance known that inherently is a poison. For example, take strychnine: We know that strychnine as used in the ordinary accepted sense is a

poison. We also know that a half a grain of strychnine has caused death. Nevertheless, when that strychnine in lesser doses is given, we know that it is an excellent remedy, and in doses of 1/60th of a grain taken two or three times per day could be given for four or five years — I have given it that long, — without producing any injurious effects, but really beneficial effects. If you reduce strychnine to one-ten thousandth of a grain, it would not have any effect whatsoever. But to give you a definition under the explanation which I have given, which is the best I can give, I would say that any substance when introduced into the body in sufficient strength and in relatively small quantities and acting chemically is capable of producing death or serious injury to health in the case of an ordinary individual in average health.

Q. Now, the question is whether under that definition caffeine is a poison.

A. It is not.

Mr. Miller: I submit that is not a definition that we are limited by. We have all kinds of people and so far as the evidence shows only a small proportion of the people are in good health. He tells us about normal people. This Pure Food and Drugs Act was to make sick people well as much as to keep well people from getting sick, and under that he is not giving a definition.

The Court: That is a matter of argument, I think, and I will overrule the exception.

BY MR. SIZER:

Q. Is there any reported case of death resulting from the use of caffeine in any quantity by human being?

A. I have not been able to find one such case in the literature.

Q. Have you examined the Allard case and the Zenetz case referred to by witnesses for the Government a few days ago?

A. I have.

Q. In what language?

A. The German language.

Q. Are you acquainted with the German language?

A. That happens to be my first language although I was born in this country.

Q. Did either of those cases show death resulting from the use of caffeine, and explain fully why they do not.

A. The original article is in the Deutcher Wiener Wochenschrift Medicine and speaks of poisoning by theocin.

Q. Which case is that you refer to?

A. The Allard case. Theocin was given in rather large doses and the patients who took theocin were sick people, they were suffering from heart disease and chronic Bright's disease, and the theocin was given for the purpose of producing a flow from the kidneys. Caffeine in one or two doses was given for a stimulant after the theocin commenced to show its effect on the body. I do not believe it is even shown in those cases that it was the theocin which produced the death, because death could just as well have been attributed to the disease, because they were gravely and seriously ill.

Q. That applies to both the Allard case and the Zenetz case?

A. The Zenetz case is rather contradictory. It reads that the woman was in good health in the first instance and afterwards says she was not feeling well, and says she went to a medicine chest and among other things there, there was caffeine citrate. There were twelve powders in the box, of which she took five, and later on took another five, but what became of the other two powders is not mentioned, and there is no indication in the first place that she took caffeine because no examination was made of what was in the box she took out from the chest where there was other medicine, and no examination of the body was made as to the caffeine; and the only evidence presented is that there was a box of citrate of caffeine in this medicine chest.

Q. I will ask you if there is any reported case of serious or permanent consequences following from the use of caffeine in any quantity.

A. I have never read of such a case. I know of one case reported where the individual took by mistake two hundred grains of citrate of caffeine, which would be equal to one hundred grains of caffeine, and from which there was a recovery.

Q. Was that the largest amount of caffeine ever taken at one time, so far as reported?

A. So far as reported—so far as I know, at least, from the literature.

Mr. Miller: Now, I move to exclude all the witness has said as to what he read of the reported case, except the Allard and the Zenetz cases which were put in evidence by us, because we were not permitted to introduce on direct examination any reported cases.

The Court: Without ruling on the reason, I think the objection is well taken.

Mr. Sizer: I am not asking for specific cases.

The Court: But the answer gave a specific case, and that I exclude.

Mr. Sizer: I submit it would be competent to show what was the largest dose.

The Court: I do not think on direct examination it is competent to show that it comes from a reported case. He may state whether caffeine is injurious or not and on Cross Examination they may bring out the other, but I sustain the motion to exclude any reference to specific cases except the witness' explanation of the Allard and the Zenetz cases referred to by the Government witnesses.

BY MR. SIZER:

Q. Are you familiar with the use and effect of caffeine as taken in coffee, tea, Coca Cola and other beverages?

A. I am.

Q. What is the effect of caffeine taken in that way on the human system?

A. It acts as a mild stimulant.

Q. Does it necessarily exhaust the reserve energy?

A. I have never found that to be true.

Q. In what way does it stimulate? Does it stimulate by drawing on the energy or by improving the quality of the energy?

Mr. Miller: That is suggestive.

The Court: The exception is well taken.

BY MR. SIZER:

Q. In what way does it act as a stimulant? I want you to explain somewhat in detail the physiological effect of caffeine as a stimulant.

A. Well, it acts on the central nervous system, locally — I am speaking about moderate doses — and on the muscles, and in that way liberates more energy. It induces under those circumstances or under the action of the stimulant, more activity and better muscular tone.

Q. Is caffeine a habit-forming substance?

A. By habit-forming we would have to differentiate because we all have habits that we are more or less subjected to, aside from the drug habit. When a person eats eggs every morning for breakfast, which I do 365 days in the year, I presume you would call that the egg habit. I like eggs better than anything else, but I have never increased the number of eggs. I eat one for breakfast every morning. Whereas, a drug habit refers to a constant desire for a certain substance, usually in increasing doses. Such a habit from a drug is usually followed by fatigue after the first stimulating effect has passed off. In that latter sense, —is caffeine a habit-forming drug — I say it is not.

Q. Have you any personal experience with it?

A. Yes, sir; I drink two or three strong cups of coffee a day. I have been doing that for at least twenty or twenty-five years.

Q. How much do you take.

A. From five to seven and a half grains every day, in my mouth.

Q. Have you had any experience in drinking CocaCola

A. I have.

Q. What is that?

A. Last October I was at the village of Jefferson, Texas. That is a very small town, and the water was not good; it was well water, and I am suspicious of well water, and the coffee at this little country tavern was very poor. There were only three drinks that could be used there, — coffee, tea and Coca Cola, and I drank Coca Cola for about three days, and I drank on an average five or six glasses a day, which took the place of water, coffee and tea.

Q. Did it produce any deleterious consequences?

Mr. Miller: We object to that. Let him tell what consequences it produced.

BY MR. SIZER:

Did it affect your nerves or body or mind?

Mr. Miller: He is certainly not a neurologist, or alienist, and I object to that.

Mr. Sizer: He may show whether it affected his health but as to whether it affected his mind he is not qualified as to that, possibly.

The Court: He may state as a physician.

BY MR. SIZER:

Q. Do you think you are competent to testify whether vour mind has been affected?

A. I do not believe it has. I think I am competent to testify to that.

Mr. Sizer: Now read that question to him.

(The question was read by the stenographer as follows: "Did it affect your nerves or body or mind?")

A. I was not aware of any effect excepting that I was stimulated and felt better and I slept just the same every evening as though I had my coffee and had gone through my daily exercise at home.

BY MR. SIZER:

Q. Have you been accustomed to drink Coca Cola since that time?

A. I take it once in a while.

Q. Have you required any habit for it?

A. No, sir; I am not so fond of sweet things.

Q. Does the qualitative effect of a drug like caffeine depend on the quantity taken? That is, does the qualitative effect vary with the quantity?

A. Yes, sir; in this way: In the first place, you could not have a qualitative effect unless there is sufficient quantity to produce it. I will illustrate that in this way: If you were standing on the ground floor here and I were to drop a log on your head it would crush your skull and kill you. If on the other hand I would grind that log up into fine powder and drop it on your head through a seive, it would have no effect on you whatsoever, and I think the same thing might be true in chemistry. For instance, I could not get qualitative test for a substance unless there was sufficient quantity to give that test.

Q. You spoke a while ago about the purin bases. I want to know whether any purin bases are poisonous in your definition of the term as you have given.

A. I would say that adenin is a purin base which would fall within that description or definition.

Q. Have you ever made any experiments on animals with the use of caffeine?

A. Yes, sir.

Q. State what those experiments were.

A. May I refer to my notes?

Q. Yes; you may refer to your notes if you desire to do so.

(The hour of adjournment having arrived, the Court thereupon adjourned until Saturday morning, March 25, 1911, at 9 o'clock A. M.)

CHATTANOOGA, TENNESSEE
SATURDAY, MARCH 25TH, 1911.
NINE O'CLOCK A. M.
Court met pursuant to adjournment.
Appearance same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED:

Mr. Miller: We were promised on yesterday a list of authorities which recommend caffeine drinks, was the language of the question put to Dr. Vaughn, and I desire to have that list furnished as early as possible and before Dr. Vaughn leaves, and look it over with a view of ascertaining whether I desire to further cross-examine the Doctor.

Mr. Hirsch: We will have it ready and present it to you, Dr. Vaughn will not leave.

J. A. WESENER
resumed the stand for further

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Now, Dr. Wesener, you were asked on yesterday about some experiments you had made on animals with respect to the use of caffeine. I wish you would go on and tell the jury about that.

A. All right. On August 2nd, 1910, two rabbits were taken for this experiment, a spotted one which was No. 3, and a fawn colored one which was No. 4. Both of these were treated alike as to the daily food given them, and they were both allowed to roam in the room at night, and in the court of the building in the daytime. They were both handled to about the same degree, and when the rabbits were given either caffeine or water in the early feeding, they were kept in the cage for four or five hours.

On the first day, the fawn-colored rabbit which I have numbered 4, received fifty milligrams of caffeine in solution in three cubic centimeters of warm water. The water solution was dismissed, and the rabbits were fed by the use of a small medicine dropper. After feeding the animals, no unusual symptoms were apparent, except that the ears of the rabbits seemed to be somewhat warmer than usual. On the second day the rabbits were fed one hundred milligrams dissolved in about six cubic centimeters of warm water. The animals showed no unusual symptoms but urinated once about the end of about two hours. The control rabbit did not urinate during the period it was kept in the cage.

Q. That was the spotted rabbit?

A. Yes, sir; and which I have numbered 3.

Q. And in speaking of the control rabbit, you mean the one that was not given caffeine?

A. Yes, sir; on the third day the rabbits were fed in a similar manner, one receiving caffeine, and the other the same amount of water. There were no unusual symptoms. When fed carrots, both animals went to eating vigorously. Rabbit No. 4 was fed one hundred milligrams of caffeine daily, except on Sunday, until the end of the experiment, and no unusual symptoms were at any time noticeable.

On September 9, the white rabbit, which I numbered 5, was taken for experiment, and it weighed at this time 2,050 grams. On the first day this rabbit was fed fifty milligrams of caffeine.

Q. Could you state those quantities in grains or fractions of grains, for instance, say in that rabbit, what was that?

A. That would be about two and two-tenths pounds —

Q. The weight of the rabbit?

A. Yes, sir; that would be about two and two-tenths pounds for that rabbit, and the caffeine given on the first day, fifty milligrams, would be seven and three-quarters grains.

Q. Seven and three-quarters grains?

A. I will correct that — no, I had my decimal point in the wrong place. That is seven and three-quarters grains — the animal was kept in the cage for about four hours and urinated once during this period. I wish to correct that, that is seventy-seven hundredths of a grain, a little over three-quarters of a grain. It is very difficult, at least I have a great deal of trouble in converting the metric system into the English system.

The Court: What portion of a grain is a milligram?

The Witness: One milligram is one-thousandth part of fifteen and five-tenths grains, that is .001 times 15.5, and fifty milligrams naturally would be fifty times that, and so on. The animal was kept in the cage for about four hours and urinated once during this period.

On the second day, one hundred milligrams of caffeine were fed.

BY MR. SIZER:

Q. That would be equivalent to about how much caffeine?

A. A little over a grain and a half. There was apparently a slight disturbance of breathing, but no other noticeable symptoms. On the third day, being Sunday, no caffeine was given.

On the fourth day, one hundred milligrams were given without any noticeable symptoms.

On each of the following four days, one hundred and fifty milligrams were given to the rabbit without noticeable symptoms.

On September 17, two hundred milligrams were given, and on September 19, two hundred milligrams were given, That would be equivalent to about three grains, or a little more.

Beginning September 20, two hundred and fifty milligrams were fed this animal daily, except on Sunday, for a peroid of twenty-one days, or until the end of the experiment.

The caffeine animals Nos. 4 and 5 that were receiving the daily doses of caffeine, showed no symptoms except those already noted, after the administration of the first few doses. No urine after feeding or no hyper-sensitiveness was detected.

Rabbit No. 4, showed more energy than did the control rabbit No. 3.

No. 5, a fully matured animal at the beginning of the experiment, and retained its vigor throughout the time it was fed caffeine.

When the animals were slaughtered, all were in a thoroughly healthy condition.

On October 14, all the animals were killed by striking on the head.

Post mortem examinations were conducted by Dr. Ludwig Hektoen of Chicago.

Q. Was that in your presence?

A. Yes, sir; it was performed in my presence, and the post mortem examination showed nothing abnormal.

Q. Now, what conclusion do you draw from ——

A. (Interrupting.) I had not quite finished, Mr. Sizer.

Q. I beg your pardon, go ahead.

A. Immediately after these animals had been slaughtered, sections had been taken by Dr. Hektoen for miscroscopic examination, the skin was removed from each animal and the alimentary canal dissected, that is the stomach and intestines and esophagus, and as much urine as could be collected from the bladder of each animal carefully saved for examination for caffeine. The liver of each animal was weighed by itself and put aside. The carcasses and organs, including the alimentary tract and the liver, together with as much blood as could be collected, were taken and thoroughly minced by passing through a sausage machine several times so that all parts were thoroughly minced, the liver minced separately and divided into portions, one for the extraction of caffeine and the other for the extraction of xanthine.

On October 3, 1910, another rabbit was fed caffeine. This was No. 6. The feeding of caffeine was begun on October 3, 1910, and continued to February 6, 1911. One hundred milligrams of caffeine was given daily excepting on Sundays.

The weight of the animal at the time was 1,045 grams.

Q. About how many pounds?

A. That would be equal to about two and two-tenths pounds weight. At the end of the experiment the weight was 2,540 grams. That would be equal to about four and a half pounds, roughly speaking.

Q. So that the increase in weight was about how much during the experiment?

A. About 145 per cent. The last dose given this animal was at 1:15 P. M., and the animal was killed at 3:40.

In the other two rabbits, Nos. 4 and 5, the last dose of caffeine given in these respective animals was about 24 hours before they were killed.

Post mortem examinations were made by Dr. Hektoen, and all parts were found to be normal. I was present at that examination.

The animal was skinned and the carcass ground up with a sausage machine, and treated in the same manner as rabbits 4 and 5. The liver was also treated separately In the caffeine-fed animals, 4, 5 and 6, no caffeine was found in the liver or in the carcass or in the urine of any one of these animals.

Q. What would that fact indicate, Doctor, as to the caffeine having been broken up into other substances in the body?

A. Well, it shows that the caffeine has been destroyed, that is, it is no longer caffeine or could be identified as caffeine.

The summary of Nos. 3, 4 and 5 rabbits—the weight of rabbit No. 3 was 1,625 grams at the beginning of the experiment; and of No. 4, 2,270 grams, of No. 5, 2,255 grams —please strike that out, I looked at the wrong table, if I may be permitted to do that—I had the wrong table.

The weight of rabbits 3, 4 and 5, at the beginning of the experiment was as follows:

No. 3, 1,190 grams.

No. 4, 1,480 grams.

No. 5, 2,050 grams.

The weight at the end of the experiment was for:

No. 3, 1,825 grams.

No. 4, 2,270 grams.

No. 5, 2,255 grams.

The gain in grams was for No. 3, 635; for No. 4, 790; and for No. 5, 205.

The per cent gained on the original weight for No. 3, was 53.3 per cent; for No. 4, 53.3 per cent, and for No. 5, 10. per cent.

No. 5, I will state, was a fuliy matured animal when the experiment was begun.

The caffeine fed to No. 4 on the first day was 50 milligrams and then was given for sixty-two days 100 milligrams of caffeine daily.

Q. Or, in other words, about three and a half—

The Court: No, one and a half.

The Witness: A little more than one and a half grams daily, and this was given for sixty-to days, and then three-quarters of a grain for the first day—

BY MR. SIZER.

Q. That would be equivalent to about what amount for the average man, weight for weight?

A. Well, the amount given here daily would be equivalent to a man weighing 170 pounds, 56 grains in the dose given to the rabbit No. 4, and the dose given to rabbit No. 5 would be equivalent to 122 grains to a man weighing 150 pounds.

Now on rabbit No. 6, the weight at the beginning of this experiment was 1,045 grams; at the end it was 2,540 grams gain in grams as 1,495 grams, per cent gained on original weight 143. Days fed 100 milligrams of caffeine 106; and total grams of caffeine fed as 10.6 grams. The amount of caffeine given this animal daily would be equivalent to 43.08 grains for a man weighing 150 pounds. The caffeine as I have already stated, as not found present in their carcasses. The purin basis in the caffeine-fed animals was somewhat less than what was found in the liver of the control animals. The purin basis or xanthine basis were found much increased in the carcasses of all the ceffeine-fed animals as compered with the control.

Q. Now, Doctor, in view of the respective conditions of life and diet of rabbits and human beings, what would you say as to the respective tolerance of rabbits and human beings for caffeine, or, in other words, on which would caffeine likely have the greater effect.

A. Well, I would have to answer your question in this way. In the first place, I would say that the rabbits live on food that is almost free of purin basis or xanthine basis, whereas man in his food continually and always has taken xanthine bases and in that way, man has quite a tolerance to such products, whereas a rabbit has not acquired a tolerance in the same manner or degree.

Q. Now, as a result of that tolerance, Doctor, right there, would the results of that be that the animal which had acquired a tolerance for a substance could take it with less effect than an animal which had not acquired that tolerance?

A. That would be true in most instances. That would hold true in most instances. But I would furthur state that in answer to your previous question, that a rabbit has the power to change caffeine—a rabbit's economy has the power to change caffeine rapidly and quickly into less methylated products, and possibly also xanthine—simple xanthine products, and this same process also takes place in the economy of man. These rabbits were given large doses, equivalent to fifty grain doses to a man weighing 150 pounds, and I know in the literature where such doses of caffeine have been taken by man, and I also know where statements are made in the literature and that 45 grains can be taken daily without causing injurious effects. That

being the case, I would say that the rabbit has about the same tolerance to caffeine that man has, based on that hypothesis and deduction.

Mr. Miller: I move to strike out that portion of the answer that deals with literature and supports his statement, because it is not proper matter for him to state in chief.

The Court: The exception is sustained, and the answer as to the literature contains, is stricken out.

BY MR. SIZER:

Q. I will ask you this question based on the literature you have read on the subject, what is your opinion as an expert as to the amount of caffeine a human being can take without deleterious or serious results, without stating, you understand, what the literature says, I want you to express your opinion as an expert from the literature and from your personal experience as well.

A. Well, from my personal experience and from the literature, I would say that an adult of average weight could take from twenty to forty-five grains of caffeine per day—I would not say they should take that every day, but I think they could take that without causing any injurious effects.

Q. Did you hear the testimony of the witnesses on behalf of the Government as to the experiments made by them on animals, Doctor?

A. I did.

Q. I will get you to state whether or not these experiments indicated anything of value with respect to the tolerance of the animals experimented on by caffeine, and give your reasons for any opinion you may express.

Mr. Miller: I submit that he cannot state anything as to the value of something, he should not pass on that, I object to the question in the form in which it is put.

The Court: In what form, I didn't exactly understand?

Mr. Miller: He is asked whether or not these experiments are of any value as a part of that question, and I object to the question in the form in which it is put, because it calls for his conclusion as to a matter which the jury must ultimately determine, and it introduces into the question a statement as to the value of them, and I object to the form of question as it is put.

Mr. Sizer: The question whether experiments are of value or not is necessarily one of expert opinion and I am asking him to give reasons for any opinion he would express as to the value of the experiments made by the witnesses on behalf of the Government.

Mr. Miller: He can testify what he considers the proper method, but to say whether or not any method is of any value or not is not within the province of any witness and is a question purely for the jury.

The Court: I think the witness may be asked as an expert whether a given method of experimentation is calculated to produce accurate results, and that may be put in the form of a hypothetical question or may be based on the testimony that the witness has heard in the presence of the jury as to particular experiments. The question may be so asked and when so asked the exception is overruled.

Mr. Sizer: Instead of putting it in the form of a hypothetical question ——

The Court: The testimony as to the particular experiments will be excluded. Whether the method of conducting that experiment as testified to by given witnesses is one that produces results of scientific value ——

BY MR. SIZER:

Q. I will ask you whether or not then the experiments testified to by the witnesses on behalf of the Government namely, Doctor Morgan, Doctor Salant and perhaps some others, add value in determining the effect of caffeine on the animals experimented on, and if you express an opinion on that subject state the reason for it.

Mr. Miller: I object to the form of that question. We can then in turn put out witnesses back on the stand to prove that in their opinion his experiment was valueless

The Court: You can do that and they can give their reasons for it.

Mr. Miller: All right, but this further point, this witness has not qualified as a pharmacologist and until he does so he is not qualified to express an opinion.

The Court: I think the witness is qualified to give an opinion on this.

Mr. Miller: He does not state, I understand, that he has made any study of pharmacology.

The Court: I think he is qualified to the extent of expressing an opinion of the value of the experiments on rabbits. I do not know whether that is pharmacology or general medicine, but he is sufficiently qualified to express an opinion on that.

BY MR. SIZER:

Q. Proceed.

A. The experiments made by Doctor Morgan were that he fed rabbits Coca Cola syrup and introduced the syrup into the stomach by means of a tube, and those should be

thrown out for two reasons ——

Mr. Miller: I object to that. It strikes me that that needs no further statement but just to suggest it.

The Court: He does not really intend to rule on the evidence but he is just expressing his opinion in an intensified form. Doctor, just express your opinion in scientific terms.

Mr. Miller: The fact is, I suppose, he thinks all of our testimony should be thrown out.

Mr. Sizer: Keep from offending Mr. Miller or any of his witnesses and put your language in as mild a form as possible.

A. In the first place, the rabbits are very sensitive to tube feeding. I have made quite a few experiments in that regard and know it is an easy matter to kill a rabbit with a tube. And this has also been found true by other experiments. Secondly, over half an ounce of sugar put every day into the stomach of a rabbit is certainly not proper food for a rabbit, and if the experiment was conducted for the purpose of trying to determine whether the caffeine in the Coca-Cola syrup was poisonous, then the presence of this sugar vitiated that experiment as to the caffeine toxicity.

The experiments made by Doctor Salant, in so far as they showed the destruction of the caffeine, are in accordance with my experiments, but the amount of caffeine for these rabbits when trying to arrive at what is the lethal dose, seems to me to be of no value in the experiments we have before us; that is, is caffeine in rather large quantities poisonous or deleterious. And I think Doctor Salant has shown in his experiments that within reasonable limits the caffeine has no effect on the animal when fed by the mouth, and I think that is the only proper way to take such experiments. This caffeine and all caffeine taken for a beverage is taken by the mouth and not injected subcutaneously or put into the blood direct.

Q. I believe you say after these animals were slaughtered, their remains were turned over to Doctor Hekteon for miscroscopical examination.

A. Yes, sir; he made the post mortem himself and took the specimens with him to make sections from them.

Q. Further with reference to the experiments you have been testifying about which were testified to by the witnesses on behalf of the Government, is it necessary to the value of the experiment that you should have a control animal going along with the animal on which the experiment is performed?

A. Yes, sir; it is.

Q. Why is that?

A. For this reason: The control animal and the animals which are experimented on should be both handled about to the same extent; that is, when you fed one animal the drug or the material which you are experimenting on, you should feed water to the other animal; that is, if it is given in a liquid form, the control animal should be given water and handled about in the same degree and both fed about the same amount and handled similarly.

Q. As to these experiments in which Merchandise No. 5 was given to some animals, what would be the effect on a rabbit of the amount of alcohol contained in Merchandise No. 5?

A. Well, it would have a serious — a bad effect, 16 to 18 per cent alcohol given to a rabbit, an ounce is equal to about a glass of pretty strong wine and that to my mind would not be proper food to give a rabbit.

Q. Have you performed any experiments on human beings to determine the physiological effect of caffeine?

A. Yes, sir.

Q. State them.

A. May I use my notes?

Q. Refer to your notes.

A. The object of this experiment was to show that the body of a human has a power to split off the methyl groups in the caffeine. The urine was collected for three days before the administration of the caffeine. A healthy individual was used, a young man weighing about 140 pounds, and he works in my laboratory. The urine was collected and measured and analyzed for the amount of uric acid and the total xanthine bases. This was carried on for the three days. The urine for 24 hours was collected. The same procedure was followed for collecting and analyzing the urine during the caffeine period. The record was kept of the data, during all those days.

At the end of the experiment the analysis of the urine during the drug period showed an absence of caffeine. The purin or xanthine bases during the caffeine period were very much increased, I would say 300 per cent. over the xanthine during the normal period.

Q. Would you find that effect from the taking of large quantities of any food containing xanthine-producing substances?

A. The xanthine would be very materially increased on a diet rich in xanthine products, or nuclein products, which of course, are decomposed into xanthine.

Now, I would like to refer to the amount of caffeine fed

to this individual.

The first day, he took three grains of caffeine in his coffee and tea. The second day three grains of caffeine in his coffee and tea.

The Court: Natural constituents?

The Witness: Yes, sir; just the natural constituents. We analyzed the coffee for the caffeine content.

The same was true of the third day, the same amount. Then, on the fourth day, when he commenced to take the caffeine in addition to what was usually found in the coffee and tea, the total amount of caffeine was 11.8 grains.

BY MR. SIZER:

Q. That was in addition to what he got in the tea and coffee?

A. No, sir; this was the total. On the fifth day, 13.8 grains, and on the sixth day, 13.00 grains of caffeine.

Q. Was any injurious effect produced on the health of that individual so far as you observed?

A. None that I was able to observe.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You are the same Doctor J. A. Wesener who wrote a letter to the Coca-Cola Company dated Chicago, April 15, 1907, stating the result of analysis made by you as to the contents of the Coca Cola syrup — a gallon of Coca Cola syrup?

A. I would have to see what you have there before I could answer that question.

(Witness examines a periodical handed him.)

A. (Continuing.) I am the same man who made this analysis and reported it to The Coca Cola Company — the result of the examination, but they had no right to publish that analysis and I wrote them so after they published it.

Q. That was published with the Coca-Cola advertisement?

A. It was.

Q. That is a copy of your letter?

A. I presume it is. I have not the letter here to compare that advertisement with my letter.

Q. Do you now state or not that that is a truthful statement as appears in the advertisement?

A. I would have to look at it again.

The Court: Do you offer that in contradiction of anything, Mr. Miller?

Mr. Miller: I offer it for a material purpose, as I shall presently show, and in contradiction of some things that

the witness has said.

A. I think that is correct.

BY MR. MILLER:

Q. That was the first analysis that was made by you of Coca Cola about which you spoke on yesterday?

A. That was made April 15, 1907, as I recollect it.

Q. That is the first one of the number?

A. That is the first one as I remember.

Q. What was the analysis through which you put that Coca Cola syrup?

A. I determined the amount of caffeine and examined the syrup for cocaine and for the percentage of alcohol.

Q. I asked what the test was; you are a chemist and I want to know what the test was.

A. Your question is rather indefinite. I would have to know more specifically.

Q. Your method for determining it, and you can give it like Doctor Fuller did.

A. The caffeine was determined as follows:

A certain quantity was taken and diluted with three or four times its volume of water, slightly alcoholized and shaken up with chloroform until the chloroform removed no more caffeine. This chloroform extract was evaporated and the crystals which were obtained were weighed. They were pure crystals, virtually pure, and that weight was caffeine.

Q. By "virtually pure" you do not mean absolutely pure?

A. I would say that it was probably 99.7 per cent pure. That is dependent on the melting point of caffeine which is wide — quite wide.

Q. What was the alcoholic test?

A. A weighed quantity of the syrup was taken and diluted with a certain volume of water and then distilled. The specific gravity of the distillate was taken and from that the amount of alcohol computed.

Q. Did you do this experiment yourself?

A. I think I did. If not, I was there when those experiments were being done. It is quite a long time ago.

Q. You refer to subsequent analysis of Coca Cola syrup. Were they conducted in the same way?

A. The caffeine was determined in about the same way, with this addition, that after I got the weight of the caffeine crystals I proved that those crystals were caffeine by redissolving the crystals and adding ammoniacal silver nitrate which would throw out the theobromine and some of the other dimethyl, monomethyl and simple xanthine

Volume III.

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1915.

No. 562.

THE UNITED STATES, PLAINTIFF IN ERROR,

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT, AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

FILED JULY 15, 1916.



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bases. There was no precipitate and therefore there could not have been any of these other products present. Then the crystal responded to the meuraxic test.

Q. Did you find any other ingredient in either of the subsequent tests that you did not find in the original?

A. The first time I tested the syrup for caffeine, alcohol and for cocaine, I found no cocaine present. The second time I do not believe I tested the Coca Cola for cocaine. I do not think I did. I would have to look that up.

Q. Have you copies or notes to which you could refer so that you could tell us what you did find in those two subsequent tests?

A. I tested for caffeine and I reported that I found in one .21 of one per cent., and in the other .19 of one per cent. caffeine.

Q. I am not asking you specifically as to that but I ask you if you found any other ingredient in the subsequent tests that you did not find in the original.

A. I do not know that I quite follow your question.

Q. You made one analysis.

A. Yes, sir.

Q. Then you made two following.

A. Yes, sir.

Q. I want to know whether you are prepared to state that the contents of the three samples which you thus analyzed were the same, barring the difference in caffeine content which you have already stated.

A. I could not answer that for this reason: That the first analysis I made of caffeine only went into the question of caffeine content, but whether there was cocaine in there and the per cent of alcohol also was gone into. In the last two analyses I made of the syrup I determined the amount of caffeine and alcohol percentages, the amount of sugar and the acidity, I believe.

Q. Could you give the stenographer the results of your two subsequent analyses?

A. I think I can.

Q. Kindly read them off to him; you have them there and they are short, let us see what you found.

A. The fountain Coca Cola syrup ——

Specific gravity at 15° C, 1.2636.

Total solids, 56.3.

Ash, 1.65.

Absolute alcohol by volume, 5.9.

Reducing sugar after inversion, 50.2.

Acidity expressed in c. c. decinormal alkali for 100 c. c. syrup, 85 c. c.

Caffeine content, 2.1.

Glycerin, a trace.

Phosphoric acid, 1.21.

Q. And your other one differs from that only in the percentage of caffeine?

A. From the first one?

Q. From that second one?

A. The first one had .2 of one per cent. and the second .21 of one per cent.

Q. The only difference in the next one is in the percentage of caffeine?

A. There is more sugar. I find here about 56 per cent. of reducing sugar after inversion.

Q. Barring the sugar and caffeine content you found no material differences between the second and third, is that right?

A. Well, no—no material difference between the second and third; that is, the fountain syrup contained a little more caffeine and a little less sugar than the bottled.

Q. How much alcohol did you find in the second and third?

A. I do not know what you mean by second and third. But the fountain syrup contained .59 of one per cent. alcohol by volume, and in the bottlers' Coca Cola syrup .48 of one per cent alcohol by volume.

Q. Now, in your first report made on April 15, I find this language and which you say is correct:

> "The contents of this jug were submitted to very careful and exhaustive analysis for cocaine and alcohol and we failed to find any trace of either."

So that you did not find any alcohol in one of these samples and you did find as much as .59 of one per cent. in one of them and probably more than that in the other, is that right?

A. I do not know whether that is in the paper.

Q. That is what is in this paper you wrote and I pass it to you again to let you see if you didn't sign it.

A. I guess that is right. I remember it now.

Q. Now, as a matter of fact, is not the alcoholic test—the test for determining the alcoholic content, about one of the easiest known to a chemist?

A. It is when you have enough alcohol but when you get to .2 of one per cent., it is pretty much of a guess.

Q. How did you get it in the subsequent tests——

A. I would not swear that was absolutely correct as to alcohol but I followed the official chemists' methods, which are the methods to be used in making these tests under the Food and Drugs Act.

Q. And that is what you——

A. I have not finished yet.

Q. All right.

A. And I followed out those directions to the letter, and that is the result I got. Now, I did not separate the alcohol as a separate entity so that I could swear exactly what I got in the distillate was alcohol but I followed the official methods.

Q. What you mean is that you took somebody else's formula and applied it and in one instance you got absolutely no trace of alcohol and so wrote and it has been published all over the country, and in the other two instances you did find alcohol and you say that is one of the easiest tests known?

A. It is one of the easiest tests known when there is sufficient alcohol present to change the specific gravity of the water. The method I used was the method used by the official chemist, — and are to govern in the enforcement of the Food and Drugs Act, and if it errs it is not my fault.

Q. If there was error and you followed the same formula or test each time and there was error committed, you attribute that to the formula rather than to yourself or your force?

A. I attribute it wholly and entirely to the method.

Q. And yet you followed the same method each time?

A. As far as I know, it is the only method that we can use.

Q. If a mistake was made, you would attribute it to the method rather than to you or your force?

A. I would not call it a mistake.

Q. An error, then?

A. I would not call it an error. I would call it one of the possibilities that will always happen when you have from two to three or one-tenth per cent of alcohol.

Q. If an error would be committed to the extent of .75 of one per cent. of alcohol, and alcohol is the easiest test that you have, then I ask you in your opinion would it not logically follow that a like error or an error of that kind might follow as to the other ingredients of this mixture?

A. No, sir. In the first place I do not know where you get your .75 of one per cent.

Q. You said from .59 to .75 of one per cent.?

A. No, sir; I said from .48 to .59.

Q. Well, put it from .48 to .59, practically one-half of one per cent. In that case the alcohol was determined by test?

A. Yes, sir. And it was determined by taking the specific gravity of that distillate where the caffeine was taken out and weighed — the substance, the identical thing was

weighed.

Q. Do you or not state that the method you followed in making these analysis was a correct one, or was it not — was it a proper one or not?

A. It was a correct one but I do not think there are any two analysts who could take Coca Cola syrup and get identically the same amount of alcohol. I think there would be a variation in the trace of alcohol all the way from .50 to 1.00 per cent.

Q. If there would be, then why didn't you find it when you dictated the certificate to the Coca-Cola Company?

A. I didn't find any in there.

Q. Then would you not say now that any other two analysts would disagree, varying from .50 to 1.00 per cent because you did not find any ——

A. I didn't find any in that particular sample.

The Court: I think that is sufficient on that.

BY MR. MILLER:

Q. How long were you in conducting that experiment on the first gallon of Coca-Cola mixture where you reported no alcohol?

A. I think I probably spent ten days on that.

Q. How was it you were able to say on yesterday and reiterate to-day that you made that test on April 15, 1907? And that is the exact date of your letter to The Coca-Cola Company.

A. It was sent out on that day.

Q. But you were asked when you made that test.

A. It was finished on that day.

Q. Then you did not make your test on April 15?

A. Yes, sir; part of it, the final result.

The Court: I think that is entirely immaterial.

Mr. Miller: From our point of view it is quite material to show the length of time consumed.

The Court: I do not see the materiality.

BY MR. MILLER:

Q. Do you say you can take a bottle or a jug of Coca-Cola syrup and analyze it and make a report in a day?

A. I should say not.

Q. That is what I thought.

A. And I do not say that I made it on that day. My report card shows it went out on April 15, that I reported it on that day.

Q. What kind of chloroform was used in extracting caffeine?

A. Merck's pure chloroform.

Q. Did you test it?

A. I would not say that I tested this particular sample of chloroform but it was tested in so far as many evaporations were made to show that the chloroform contained no residue.

Q. I ask you if you tested it or witnessed a test.

A. I was present when the test was made and it was labeled "Chemically Pure."

Q. What has been your experience as a pharmacologist?

A. I don't think I have had any experience in pharmacology.

Q. You do not belong to any pharmacological societies and have not investigated the matter of pharmacological research?

A. Not as the term is generally understood. I have not practiced pharmacology or made any experiments.

Q. Pharmacology is that science which deals with experiments of drugs on animals and their physiological action.

A. As far as it goes into physiological chemistry, I have had considerable experience in that line but as to the function or the results produced on animals by those drugs, I have not made a study of that.

Q. Then you undertake to say you experimented on animals with drugs such as caffeine when you did not know the effect of the drugs on the animals and never studied pharmacology at all, and you come here and attempt to give an opinion based on that?

A. The inquiries which I made as to the caffeine feeding to animals was to find out whether the caffeine was destroyed in the body. Secondly, if there was any caffeine excreted as such or left in a free condition in any part of the body. And, third, to see whether there were any changes produced in the organs or economies of the animal while being fed caffeine. I was not inquiring as to the stimulating effects or the action on the central nervous system or on the muscles or kidneys from a pharmacological standpoint.

Q. Then you do not mean to be understood as stating from your experimentation on these five or six rabbits what the effect was on the central nervous system, on the cord or brain or any other particular function of the body?

A. I would not want to state it as a scientific pharmacologist by any means but I will state that I did not see any action on the central nervous system of the rabbits served with caffeine, only a few instances of the dieuretic action after the first or second dose.

Q. That was the dieuretic action that you refer to?

A. Yes, sir; influence on the kidney.

Q. Do you mean to go on record as saying there was no result apparent on the nervous system or the respiratory or circulatory system, and if you do, to what do you ascribe the warmth of the rabbit's ears and the increased palpitation when you gave it caffeine?

A. I did not say it had increased palpitation.

D. Didn't you say that?

A. No, sir. I said there was some difficulty in breathing in the first dose given. I didn't say anything about palpitation.

Q. To what do you ascribe the increased warmth in the ears and also the difficulty in breathing after you gave the caffeine, if it didn't have any effect on the central nervous system, or the cord or brain or any other function of the body?

A. The caffeine must have had some stimulating effect on the centers which control the breathing apparatus of the animal.

Q. What are those?

A. I do not know. I could not pick out that nerve. I leave that to the pharmacologists.

Q. To what do you ascribe that increased warmth of the animal's ears that you found after you gave him the caffeine?

A. I do not know just how to explain it. I do not know that any body can and I would not attempt it.

Q. Do you not know how to explain it?

A. No sir; I have no theory on that.

Q. You witnessed the fact that you do not know how to explain it?

A. I do not like to talk about theories. I would sooner talk about the facts I have discovered in research in a chemical way.

Q. Who was this Mr. Hooper, what connection did he have with the Coca-Cola Company, that engaged you to make this first analysis?

A. His name was Harper.

Q. Harper, then.

A. I don't know just what connection he had with The Coca-Cola Company.

Q. Well, in response to his engagement you wrote a letter dated April 13 directly to The Coca-Cola Company at 1222 Wabash avenue, Chicago, didn't you?

A. Yes, sir; I believe he asked me to make out my report to The Coca-Cola Company, if I remember rightly.

Q. Now, under what circumstances and how did you

test what you referred to on yesterday as the cocoa nibs, to ascertain the contents?

A. Well, I didn't say that I had recently made a test of the cocoa nibs.

Q. I know, but you undertook to tell what was in them and I want to know if that was from your personal observation. You told the jury what was in them.

A. I have made tests for the amount of caffeine in chocolate, years ago, but I do not remember how much was present, now.

Q. But —

A. But if you want me to tell how, I can do so.

Q. I asked you under what circumstance and when you made the test to ascertain what was in the cocoa nibs, and I will ask you in that same connection what you found.

A. Well, I didn't since — I do not know when I made this test, I know I made it some time or maybe several times within the last ten or twelve years, and in those coca nibs, as I recollect,—that is, the chocolate is made from coca nibs—there is found not only theobromine but also caffeine.

Q. What is the difference between chocolate and coca nibs?

A. Well, the coca nib is the seed of the chocolate, ground into a sort of paste and then mixed with cane sugar, which makes the chocolate, and sometimes a spice is added to it that makes chocolate, commonly sold as chocolate.

Q. And that is spelled c-o-c-o-a?

A. Yes, sir.

Q. Coca?

A. Yes, sir.

Q. You never saw one of these coca trees growing in your life?

A. I don't think I have; no, sir.

Q. And in the process of your testing, if you made a test at all, you used a test that is applicable for determining what percentage of caffeine or theobromine is in the finished product known as chocolate?

A. I have taken the finished product and tested that; I think I made a test of the coca nibs, but I won't be certain about that.

Q. You won't be certain about that?

A. Whether the coca nibs as such also, whether I tested them as such, I don't recollect.

Q. Is there any means of isolating the caffeine that might exist in the coca leaves, if there be such, from any that may be added in the making of the chocolate where a

certain proportion of the nib is utilized, and if so, did you attempt to isolate or distinguish that from the other?

A. There would be no way of isolating the caffeine put in the chocolate and separating it from the caffeine which naturally is in the coca nibs from which the chocolate is made.

Q. And then you don't know what proportion of the caffeine contents of chocolate, if any, you found had been added in the process of making, and that which was inherently in the coca nibs, if any?

A. If any caffeine had been put into chocolate mixture I could not tell whether it had been put in or whether it existed there.

Q. You did not see the chocolate manufactured, of course?

A. No, sir.

Q. Is there any difference in the solubility or relative solubility of caffeine and theobromine, and if so, what?

A. I think caffeine is more soluble than theobromine.

Q. And which is the more stimulating on the nervous system?

A. Caffeine, I understand.

Q. Well, you are speaking then from what you have read?

A. From what I have read and the little experience I have had on myself and some of my friends.

Q. You did not mean to say that theobromine, yesterday, stimulated to the extent of caffeine — stimulated the nervous system?

A. I didn't say that it did.

Q. I thought you stated that they both stimulated the nervous system alike.

A. No, sir; I said nothing of the kind. I said it had much less action on the central nervous system.

Q. Then if the stenographer wrote your testimony that they both alike stimulated the nervous system, you did not mean to be understood that way?

A. Yes, sir, I did not mean to be understood that way; caffeine acts upon the nervous system and theobromine very little, theobromine is very much more of a muscle stimulant than caffeine.

Q. How does theobromine act on the muscles, Doctor?

A. Well, I am not a pharmacologist and I do not know just how that chemistry takes place. I do not know whether a pharmacologist could explain that, just what takes place there when that theobromine solution touches that muscle fibre.

Q. How do you know? That is what I want to know.

A. I do not know, and I do not know that anyone does.

Q. But you do?

A. I don't know how that works, and then just what chemical process it goes through in making that muscle contract, to be a stimulant.

Q. Then when you said yesterday that it was a nerve stimulant, you were simply stating what you had heard and read?

A. And what I have seen and what I observed myself, speaking about caffeine nerve stimulants.

Q. I am talking about theobromine.

A. I have not said it acted very much on the central nervous system, but that it acts as a muscle stimulant.

Q. I am talking about that also — I will ask you how you know it acts on the muscular system, how you know it?

A. Well, I don't know just how it acts upon the muscles, but I believe it is the theobromine and possibly the paraxanthine from caffeine which is taken that acts upon the muscle. I do not think caffeine at all when given by mouth acts on the muscle.

Q. But caffeine broken up, when broken up, parts of it become paraxanthine?

A. And theobromine.

Q. You think it is the theobromine and paraxanthine portion that acts on the muscle?

A. Yes, sir; which I believe is originated out of the caffeine if given by mouth.

Q. It springs from the caffeine?

A. Yes, sir; —

Q. And is the mother —

A. (Interrupting) That is the basic substance from which these others arise. I will put it that way.

Q. Is there any difference except one of degree or intensity in taking it by mouth and injecting it into the blood stream?

A. Well, yes; I would say that by giving caffeine in the blood stream you get the full effect of the caffeine and that the picture may be the same as one given by mouth but only more intense, but you can't swear that it is caffeine that acts upon the muscles when you give it by mouth. As I have stated, from my experiments on rabbits I do not know that it is caffeine, I do not believe it is caffeine that acts on the muscles, but I believe it is a theobromine, the same stuff we have in chocolate, and paraxanthine, which is identical with theobromine that acts upon the muscles, and in that I do not think one would be justified in assuming that giving it by hyperdermic injection or introducing it directly into the blood has the same action as when you

give it by mouth.

Q. Are you prepared to draw any distinction, and if so, how?

A. I say, if caffeine is given by mouth it is the theobromine and paraxanthine which renders more stimulated the muscles — that acts as a muscular stimulant.

Q. If it is given by injection, what is it that acts as that stimulant?

A. I will say in that case no doubt the caffeine, too.

Q. What are the ingredients —

A. (Interrupting) The same, theobromine and paraxanthine, which would naturally be formed out of caffeine, even in the blood stream.

Q. Then it is broken up into these bodies and they are brought in contact with the muscle?

A. Yes, sir; and of course it has in passing through the alimentary tract or the thoracic duct, and through all these avenues, I don't know how much of the caffeine is changed into these other lesser methylated xanthine bodies.

Q. And the length of time which it requires the caffeine to be brought in contact with muscle depends on the rate of solution?

A. Yes, sir; that is quite variable.

Q. And when you take it in the stomach it is absorbed in the blood stream?

A. I don't know whether it is absorbed from the stomach or not. It may not be absorbed until it gets into the smaller intestines.

Q. You are not prepared to speak on that?

A. Yes, sir; I think I am. I don't think I can answer—

Q. What are your experiments on that point?

A. Well, I have given potassium iodine in capsule and tested —

Q. (Interrupting) I object to that. I am talking about caffeine.

A. I have to tell you about my observation on the absorption of the stomach.

Q. I am talking about the absorption of caffeine.

A. Well, I have to first answer that by giving you my observation on the absorption of that.

Q. I don't want that as to any other drugs. Different drugs act differently and are absorbed at varying intervals, and you know that as a chemist and a pharmacologist and a doctor of medicine.

A. Well, I am not a pharmacologist.

Q. Well, as a doctor of medicine, Doctor Wesener, you know that different drugs are absorbed at variable intervals and in variable proportions, don't you?

A. Are you referring to the stomach?
Q. Yes.
A. No, not by the stomach as an organ — material that goes into the stomach is not absorbed from the stomach; very few such materials are absorbed from the stomach directly, most of the absorption takes place from the small intestines.
Q. Are you prepared to say that caffeine is or is not absorbed from the stomach?
A. I am not prepared to say as to whether it is or not — I don't know. I don't know as anyone knows.
Q. All right then — does not the administration of caffeine have any action on the kidneys, any dieuretic action?
A. In moderate doses it might have a stimulant action on the kidneys but not much of a dieuretic action. It did not act that way on the rabbit where I gave large doses, or enormous doses.
Q. You found an increase of urine at the beginning of the administration, I believe you said.
A. There was diuresis once or twice after the first two doses.
Q. And what do you mean by diuresis?
A. The urine — urinated in thirty or forty minutes after the dose.
Q. And that showed that the action of this drug was in part on the kidneys?
A. That particular dose and the following dose, but none of the doses after that; I didn't notice any diuretic action on this particular assistant of mine — that is, there was no increase of urine during the caffeine period.
Q. The fact is — we will get up to that laboratory experiment directly — but in fact you did not sleep with these laboratory men all the time, did you, these fellows that were supposed to take a certain amount in the daytime and when not supposed to —
A. No, sir; I didn't sleep with them.
Q. You can't tell what they took after they were away from you?
A. I can only say that I saw him take two doses of caffeine; that is, four-grain capsules, I didn't see him take the two-grain capsule which was taken after dinner at night.
Q. And that is all you know about it, you separated company from them and you do not know what they did?
A. I did that, but I have absolute confidence in him.
Q. I am not talking about that.
A. He is a good reliable fellow.

Q. I am talking about what you know personally.

A. Yes, sir; that is right, I don't know of all he did after I left him.

Q. You don't know what they took?

A. No, sir; only what he told me.

Q. You don't know what he took, only what he told you?

A. Only what he told me, but from my analyses of the urine, I know he took caffeine; it shows that.

Q. And the other man, so far as you know, might not have taken any xanthine-producing substances because you did not know what he took?

A. I do not know what other man you refer to.

Q. I thought you said you had two men.

A. Only one man.

Q. You didn't have a control along with him at all?

A. Yes, sir; I had a control in this way, — that is, the diet was under absolute control for the first three days and the urine for 24 hours was collected after each and every day during the control period. Then, after he was put on larger doses of caffeine and the urine was collected in the same way and compared with what the urine finding showed us in the control period.

Q. I thought you said you didn't know what he did during this period.

A. I am not sure as to that, only what he told me. I have absolute confidence in this young man; I could not tell only from what he told me. I could not put him under lock and key day and night.

Q. What was the urinary test made and what was the reaction in that case?

A. Well, the uric acid was determined.

Q. Yes; how much was found?

A. In this particular case?

Q. Yes.

A. On the first day, the total uric acid in the urine collected was .528 grams, volume of urine on that day was 1390 cubic centimeters; on Saturday, the next day, the amount of uric acid found was .392 grams and the volume of urine was 1860 cubic centimeters. Now, there were about 500 cubic centimeters more than on the previous day. On Sunday, which was also a control day, the volume of urine was 315 cubic centimeters and the total uric acid found was .466.

Then Monday, which contained an additional amount of caffeine of about 10 grams, the uric acid .517, and the total amount of urine eliminated was 375 cubic centimeters.

On Tuesday the total amount of urine passed was 1510

cubic centimeters, and the uric acid .4183.

On Wednesday, the last day, which was also caffeine day, the uric acid .55, and the total amount of urine passed was 950 cubic centimeters.

Q. During what period was this voiding you refer to, with reference to the day?

A. All the urine after breakfast until noon, until the next day before breakfast, all that was voided during that period was collected and saved.

Q. And for that statement you have the word only of the subject?

A. And the urine which he brought down.

Q. Well, that is what I say; he brought down certain samples and you took his word for it?

A. Yes, sir; specimens. I can't swear they were his specimens, he said they were.

Q. Now then, I want to ask you what kind of xanthine or xanthine bodies you found in these specimens that were brought to you and then your method for ascertaining it.

A. Well, I estimated the total xanthine by two methods. One method showed about 300 per cent. more in total xanthine than the other. I think we have a little something to learn about methods on xanthine determination. I think we all have something to learn on that, I have made a little discovery that I will have to give up at this time, but I hope to have published later on. I find that the ammoniacal silver nitrate method as far as given in my work precipitated all of the xanthine bodies with the exception of caffeine; it precipitated theobromine and theophyllin and paraxanthine and the simple xanthines since as xanthine, adonin, guanin, and so on. I find that the copper sulphate and sodium bi-sulphate method does not precipitate theobromine, and as far as I have been able to read, does not precipitate paraxanthine, but it does precipitate theophyllin.

Now, knowing that the copper sulphate and the silver bisodium method does not precipitate theophyllin, the increase in xanthine bodies found in the urine by the ammoniacal silver nitrate method was not due to theophyllin, was it?

Q. Well, I am not an expert; I am trying to learn from you.

A. But it must have been due from theobromine and paraxanthine or either one separate or combined; I have not gone any further than that.

Q. What was this first method? Give it in detail, from a chemical or analytical standpoint, that you conducted. Are you prepared to do that without referring to any notes

on the subject?

A. No, sir; I have to have the notes. I can give you offhand the method — but I will have to refer to my notes for details.

Q. If you were given a specimen, such as that subject of yours, which was brought to your office and you were asked to determine the analysis of it to ascertain as to the xanthine bodies, — you can't give us the method by which you would do that without referring to prepared notes beforehand on the subject?

A. I can give it to you offhand.

Q. Well, that is all I ask for; without referring to your notes tell us in detail what you did.

A. In detail what I did, without referring to my notes?

Q. I think that is what I asked you.

A. I think I want to refer to my notes if you want it in detail.

The Court: The witness is informed that he is permitted to refer to notes for the purpose of refreshing his recollection; you cannot read from your notes.

Mr. Miller: My point is this: If a man is a competent analyst, and I am not attempting to say the witness, Doctor Wesener, is not, but I submit if a man is a competent analyst he can take a specimen of urine and if he is prepared to determine the contents of the specimen, he could not tell what he found in quantity, but he could tell the method adopted without referring to any notes.

The Court: This witness states that he cannot without reading his notes to refresh his recollection and he may read them to refresh his recollection.

Mr. Miller: Very well; I respectfully note an exception.

The Court: The exception may be noted.

BY MR. MILLER:

Q. Proceed to tell us in detail the method you adopted and which of the two methods for determining the presence of or the absence of xanthine bodies.

A. A certain quantity of urine was taken, and the total uric acid established by what is known as Hopkins' method. Do you want the Hopkins' method?

Q. No. Our chemists know what that method is.

A. Yes, sir; it is given in all textbooks.

Q. We have a man who knows what that is.

A. All I can say is that the details were followed as given in Hopkins' method; that is, a certain sample of urine was taken and saturated with ammonia chloride salt which precipitates the uric acid as ammonia urine. This was filtered out and washed with a solution of ammonia

chloride. The uric acid found in this was titrated with a solution of potassium parmanganate.

Q. Do you know what that is?

A. Yes. K. N. M. 4 end 20 solution. The uric acid was titrated with this end 20 permanganate solution, and from that the amount of uric acid determine. The uric acid found under these circumstances was reduced to the amount of nitrogen and the nitrogen factor was determined in this way: A chemically pure sample of uric acid was taken and made up to a certain strength and this was titrated with permanganate solution.

Q. How did you get that chemically pure solution you are talking about?

A. How?

The Court: The witness wants to finish his answer, and he may do so.

The Witness: Then the chemically pure uric acid was taken and a definite quantity weighed out and made up to a certain volume in water. That was also titrated with a permanganate solution and then another weighed quantity of this uric acid was taken and burned with sulphuric acid and nitrogen determined on, and in that way you get a very pure crystal of the uric acid — by the Kjeldahl method for nitrogen.

This potassium permanganate solution was stanardized against the nitrogen factor obtained by the Kjeldahl method.

Then for the xanthine basis a measured quantity of the urine was taken and to this was added magnesia mixture to precipitate the phosphates and possibly some other salts. It was filtered and the filtrate was treated with a solution of an ammoniacal filtrate; that is, containing silver nitrate and ammonia. This ammoniacal silver nitrate solution precipitates the uric acid to the xanthine basis. The precipitation of the uric acid and the xanthine basis was filtered out and washed with weak ammoniacal solution, the precipitate was then dried. So as to drive off all ammonia and the nitrogen combined to the silver nitrate was run as such, and from that nitrogen, the total nitrogen — the nitrogen for the uric acid was deducted — the difference in that nitrogen was deducted to the xanthine basis as the xanthine basis.

Q. Is that all you did?

A. Yes, sir; I think that is enough.

Mr. Sizer: I would like to have the record show that the witness answered that question and gave his method of analysis without referring to his notes.

The Court: It may appear in the stenographic notes.

BY MR. MILLER:

Q. Now then, Doctor, that being all you did, what was the method you adopted to determine whether or not the caffeine was present?

A. Well, the urine was shaken out with chloroform, several times with chloroform, and the chloroform was evaporated and the residue tested for caffeine and no caffeine was present.

Q. Did you state that a moment ago when I was asking you to give in detail what your experiments were, didn't you omit that very thing?

A. I thought you were referring to my test of urine with reference to what had become of the caffeine.

Q. Well, didn't I understand that you were assuming to state in detail the method you adopted?

A. I thought it was with reference to what had become of the caffeine, how to determine the uric acid and how to determine the purin basis.

Q. So that you have only given me a part of the method you adopted. Now, tell us the remainder of that method.

A. For what?

Q. To ascertain whether or not caffeine was present.

A. I found no caffeine in the urine, and that is a very simple analysis, all you have to do is to shake it out with chloroform and if the caffeine is present chloroform will take it out and by evaporating the chloroform you can examine the residue and see if there are any crystals there, and if they are there, subject them to the meuraxic test, and if it shows that test you can go on further and see if that is due to the xanthine dimethyl or something else, paraxanthine, and you have to precipitate these out and remove them and shake up with chloroform and evaporate that again and the residue in that case, if it gives the meuraxic test, is caffeine.

Q. With this chloroform test you don't get any crystals at all?

A. No, I don't remember that I got any crystals from the urine, but I think I did from the liver—of caffeine, from the liver of one of these rabbits.

Q. How was that?

A. I found some crystals in the chloroform extract from the liver of one of these animals, but not from the urine.

Q. Well, we will talk about that directly,—come to the liver. In the urine you say you did or did not, or that you have no recollection on that subject?

A. I don't think I obtained any crystals from the urine, chloroform extraction, as I remember it.

Q. Now, do all forms or methods go into dissolution when you put them through this chloroform test, these methylxanthines?

Mr. Sizer: I did not get that question.

Mr. Miller: I have asked if all forms of these methylxanthines, into which the xanthines were broken up, will go into dissolution, when you put them through that chloroform test.

The Witness: Yes, it would seem so.

BY MR. MILLER:

Q. So that if caffeine be introduced, and it is a composition of theobromine and theaophyllin and paraxanthine, all broken up in the test, all these substances go into dissolution through the process into which you put it?

A. That is by treating with chloroform?

Q. Yes.

A. I do not think you have stated your question very clearly; I think I know what you mean but I would prefer to have you state it a little better than that.

Q. I will ask you whether or not if there had been present in the urine, that specimen which was brought to you, theobromine, theophyllin, paraxanthine, — if those substances would not have been dissolved by the chloroform process which you gave and go into dissolution.

A. I would have thought so, yes; I would have thought so, yes. Although they are not as soluble as caffeine by any means.

Q. Is it or not true that what are known as monomethylxanthines would also go in dissolution?

A. I don't know whether they would with chloroform or not — I am not familiar with that.

Q. What was that you said about having found adenin in some of those specimens of urine?

A. I didn't say I found adenin.

Q. Did you say adenin was one of the xanthine bodies?

A. I said it was one of the bodies precipitated by the ammoniacal silver nitrate.

Q. Did you or not state, or do you now state it is one of the xanthine bodies?

A. Adenin is recognized as belonging to xanthine bodies.

Q. And highly poisonous, is it not?

A. So I understand. I would not say highly, but it is considered a poison.

Q. Now, what portion of the urine was taken in making these two tests you refer to?

A. Can I refer to my notes on that?

Q. Certainly, Doctor.

A. 100 cubic centimeters was taken for the uric acid and 100 cubic centimeters for the total xanthine basis.

Q. Now, how long after you received these specimens of urine, before you began the test?

A. Why, that same day. That morning when the sample was brought down the examination began.

Q. And you immediately conducted these tests personally?

A. I took charge of these tests; I had some assistance from my associates there, Mr. George L. Teller.

Q. What part did he do?

A. I won't say that I always measured the quantity of urine or I was always present, but I was present when most of this was going on, and we worked together on it. We have some persons in the laboratory that run nothing but nitrogen and I would rather take their figures than my own on nitrogen, because they do it more accurately.

Q. And, so far as the determination for nitrogen — that was done by the assistants in the laboratory?

A. Yes, sir; under my direction.

Q. Now, you referred to a certain produce as an end product; what do you mean by end product?

A. Speaking with reference to a produce that passes out of the body as an end product?

Q. I am speaking of it in the same sense that you spoke of it; I wish you to define it and tell me what it is.

A. Well, an end product, as I used it in the physicological or physiological chemical sense, would be urea, which is the end product of nitrogen — nitrogen metabolism. If you take an egg, albumen — eat it, one of the end products of that albumen is urea, and that is called an end product for that reason.

Q. And by "end product" you mean something that is being prepared or in process of being discharged from the body?

A. Yes, sir; in the same sense and relationship that ash is taken out of a furnace, the end product of coal.

Q. Of coal?

A. Yes, sir; I used it in that sense.

Q. Now, when you referred to adenin in the connection you did, did you mean to refer to xanthine also — is adenin a xanthine?

A. Adenin is spoken of sometimes as belonging to the xanthine group. It all depends on what group you take. The purin, nuclein and xanthine bases are spoken of almost synthetically.

Q. What is the difference between adenin and xanthine,

if any?

A. Well —

Q. (Interrupting) Chemically speaking, of course.

A. Xanthine is $C^5H^4 — {}^4O^2$ and adenin is $C^5H^5N^5$; it is the NH^2 group in oxygen.

Q. Must not the body contain oxygen in order to be classed as a xanthine body?

A. When you want to limit it strictly to the term xanthine, it would have to be — but the way it is used it would include adenin, guanin and other elements.

Q. Do you say adenin does contain oxygen or not?

A. It does not; it is a purin basis, and what is xanthine — I think that is a proper name, — the only reason I have been using the purin basis is because, while I have been on the witness stand — is because I thought the jury was familiar with xanthine —

Q. Well, if the jury is not any more familiar than I am they are not very familiar with xanthine. I am trying to find out the difference between xanthine as such and adenin as such, and whether or not it consists in the fact that one of them contains oxygen and the other does not.

A. Am I to answer that?

Q. Well, I asked you if that is the difference, and ask you to answer.

A. Xanthine contains two atoms of oxyger., and adenin contains no oxygen but contains amino — NH^2 group.

Q. Well, you are getting me up to the amino group; I am going to stop. Are you prepared to state that caffeine is reduced to xanthine, and if so, from your personal observation tell us how.

A. Well, I don't know just how it is done in the body, but I know it is done and my experiments show that caffeine is changed into less methylated bodies. I can't say how much of the caffeine is changed into xanthine itself, and how much is changed into certain demethylated xanthines, for I don't know, I didn't go into it that extensively, and I think such work would be open to question because our methods are not very good on those points.

Q. Now, Doctor, did you isolate or attempt to isolate a single one of the xanthine bodies in these experiments of yours?

A. No, I took them as a whole, as they were precipitated by ammoniacal silver nitrate and by copper sulphate methods.

Q. This method as you described is easy of illustration by use of the term "ashes" after the wood is burned, is the product that is thrown off, that which sustains life by taking food and building up cells in the body or repairing

these, which are being decomposed?

A. Why, I stated urea is one of the end products of nitrogen metabolism, and so in that sense, as ash, in that sense a part of that albumen food I have taken in, and of course that albumen replaces a certain amount of waste and tear and wear that has taken place in our bodies and replaces that which goes out as ash, and which is of no value.

Q. Well, strictly speaking, you mean that a certain proportion of that food replaces that wear and tear, you are not prepared to say that is all it does?

A. Well, that replaces a certain kind of wear and tear.

Q. Well, for instance, now assuming that xanthines are taken into the body —

A. Yes, sir.

Q. I want to know what they do when they get in there.

A. Well, it is pretty hard to say, but the best explanation that I can give of that is this — xanthine is probably burned up into urea which is one of the end products of nitrogen metabolism. It may also be excreted to a certain extent in the uric acid, but I do not believe uric acid is increased by caffeine beverages, or it may be synthesized into the other points in the body — that is possible.

Q. The fact is you don't know what becomes of it?

A. I don't think anybody does.

Q. I am trying to ascertain from you what you know.

A. That is all I know, — is what I have told you. I can't tell you any more.

Q. And that means it may do two or three things and you don't know which it does?

A. I know from my reading that xanthine acts as a stimulant and it is probably one of the natural stimulants in the body through the human economy, and I know that it is highly probable that part of it is oxydized to urea, that some of it may be changed into uric acid and it is also possible that it might be synthesized in the cell into a nuclein body.

Q. Xanthine is the base of uric acid?

A. Is a base of uric acid?

Q. Yes.

A. Well, uric acid belongs to the same group and is of that type. Xanthine is a base and it is brought into contact with something else and forms uric acid. Uric acid only differs from xanthine in that it has one more atom of oxygen.

Q. When you put the xanthine with the one more atom of oxygen, you get uric acid?

A. You are right.

Q. That being right, does it logically follow the more xanthine you take, the more uric acid result?

A. If it were true that it were all oxydized into uric acid, but it is not true. I did not find any increase of uric acid in my test.

Q. I thought you said you did not know what became of it when it went into the body, except that it might be one of two or three things, and this conversion into uric acid was one of them?

A. I said I did not find any increase, and those figures will bear me out when you estimate the percentage of uric acid found, and I think most of the authorities are agreed on that fact that the purin basis — I won't say the purin basis — but that the caffeine does not increase the uric acid.

Q. At any rate, the result of having caffeine is to produce more xanthine?

A. Xanthine compounds or bases — yes.

Q. In using the term "hydrolosis" yesterday, what did you mean by that term?

A. That is a term often used in chemistry.

Q. But you used it yesterday, what does it mean?

A. It means a substance that will take up water and then break down into smaller molecules.

Q. And this process of hydrolosis, what is formed in that?

A. That depends somewhat on the substance or material you are working with. For example, if you take cane sugar and add a molecule of water, the hydrolosis would take place and you would get the two levulose and dextrose.

Q. You use this term hydrolosis in connection with caffeine and stated that hydrolosis took place. Now, of course, I am trying to follow counsel for the claimant, and I ask you in what respect you use it as respects caffeine?

A. The sum of the methyl group was split off of the caffeine, a sort of cleavage process, sometimes spoken of as hydrolosis.

Q. What does it form when it is split off by hydrolosis?

A. I do not know what becomes of the methyl group unless it is burned up and goes out as carbon dioxide, the gas you throw off from your lungs in breathing.

Q. Would not that form methyl alcohol?

A. Chemically in the laboratory that could be done, but not necessarily, no. It forms formic acid, but most commonly it would be carbonic acid.

Q. At any rate, under this description of yours that you have given, you say it might be done, but would it not

necessarily be done, this formation of methyl alcohol?

A. I don't believe any methyl alcohol would be produced in the body. I am quite certain as to that.

Q. If it would be, it would be wood alcohol?

A. If it would be, we would all go blind, because wood alcohol tends to blindness.

Q. Is methyl alcohol wood alcohol?

A. Yes, sir; I agree with that.

Q. Now, referring back to the diuretic effect of caffeine, I will ask you if the work of Professor Cushny is not a standard recognized authority?

A. Yes, sir; I consider it such.

Q. And I will ask you if Cushny does not lay down that caffeine acts as a diuretic?

A. He does. But what else does he say, read the rest.

Q. I will let you read it if you want to: "Caffeine is excreted in the urine to a very small extent as such—"

A. (Interrupting) When you give large doses of it, yes, but not otherwise.

Q. The doses you gave, you didn't find any?

A. No, sir; they were not large enough, and I gave very nearly fourteen grains to the dose.

Q. (Reading): "During the passage through the body, it loses its methyl group."

A. I agree with that.

Q. "First becoming dimethyl and then monomethyl or xanthine." Do you agree with that?

A. I do not carry myself that far, but I presume that is right.

Q. "Eventually xanthine is formed."

A. I believe that is so.

Q. "And this probably breaks up into urea."

A. I think that is right, the way I look at it.

Q. "In the urine are found some quantities of the unchanged drug, accompanied by larger quantities of dimethyl xanthine and monomethyl xanthine."

A. The unchanged drug would be present in the urine if you gave large doses of caffeine, otherwise not.

Q. You do agree that Professor Cushny does not in that connection refer to large doses?

A. He does not refer to large doses, but I think Professor Cushny is simply quoting an article written by some experimenter on that subject. That is not Professor Cushny's work, but his opinion from this experimental work of someone who made the experiment. That is evident. He did not make the experiment.

Q. How do you know?

A. I am certain he didn't make it.

Q. How are you certain?

A. For this reason, it is not a pharmacological study, it is a study of a physiological chemist, and Professor Cushny is not a physiological chemist.

Q. For that reason you state you know he did not do that work himself?

A. That would be my opinion, for I know Professor Cushny would not undertake to do work of that kind unless it was in his particular branch.

Q. Does not any pharmacologist, in order to understand pharmacology, have to be to an extent a physiological chemist?

A. He would have to know a great deal about the subject — that is true — but he tries to keep out of the domain of pure physiological chemistry.

Q. To be accepted as an authority, as Professor Cushny is, does not he have to be what is termed a physiological chemist?

A. He would have to in so far as he would want to know the action of drugs on the human system, but I don't think you could get Professor Cushny to qualify as a physiological chemist. I may be mistaken, but that is my opinion from reading his excellent work.

Q. Now, in this administration of caffeine, what would be the effect if a grain of caffeine were taken in each ounce of our food and each ounce of our drinks in the day?

A. How many ounces would you take of food and how many ounces of drink?

Q. You know the diet of an average man, just about a grain in each ounce that he takes?

A. Of course, that would depend on the individual.

The Court: Give the standard, Mr. Miller.

BY MR. MILLER:

Q. Then take the average man.

The Court: Assume your basis, how many ounces, so as to save time.

BY MR. MILLER:

Q. Are you prepared to give the diet of an average normal man?

A. I would have to figure it out.

The Court: Just assume it in your question.

BY MR. MILLER:

Q. Well, assume fifty ounces, and I think that is not very far from right, — that would be fifty grains.

A. A man should not take more than three ounces of fat and not more than ounces of meat and not more than

three-quarters of a pound of starchy food—you are awfully high on that fifty ounces. That would be twelve ounces of caffeine three for the food would be fifteen and four for the meat would be nineteen — I don't know of any man eating fifty ounces a day.

Q. And the coffee and tea?

A. That is liquid. I am talking of actual food.

Q. I want to get the drink as well. He would take nineteen of food, that would be nineteen ounces of caffeine in the food?

A. I am talking only about food, not water. I do not consider that food.

Q. Now, add to that the coffee and tea.

A. How many ounces of that?

Q. You drink three cups of coffee. They are about five ounces each and that would be fifteen ounces.

A. Now you want me to add a grain for each ounce of coffee?

Q. Yes.

A. Nineteen for food and one grain for each of fifteen ounces of coffee, that would be thirty-four grains with the coffee.

Q. Now, to that add the glasses of water that a man drinks a day, he would probably drink four or five glasses of water.

A. Three or four.

Q. That would be about five ounces each, and add fifteen grains for that.

A. That would bring it up to —

Q. About fifty ounces.

A. Yes, sir, estimate about fifty ounces.

Q. What would be the effect of taking that much caffeine daily, a grain to the ounce?

A. I don't know what the effect would be of taking that much daily, but I have stated from what I have acquired from the literature that forty-five grains have been taken daily without producing serious effects.

Q. That was in the case of what?

A. That is recorded in Gademer's text book on toxicology.

Q. That is the man who wrote the work on the Divine Tree?

A. No, sir; that was Doctor Mortimer who wrote the "Divine Plant."

Q. Will you give the reference to Gademer?

A. Gademer's work on Toxicology.

Q. That forty-five grains may be consumed daily without harm?

A. He said those amounts have been taken daily without producing noticeable results.

Q. Is he the only authority you can cite on that point?

A. I think there are some others. I have seen them but I cannot recall now, but I am not exactly certain about the reference and that is the reason I don't want to give them, but I can furnish them.

Q. Would you add caffeine to milk?

A. To what extent?

Q. To the extent of one or one and a quarter grains?

A. I might under certain conditions. If I were in charge of the commissary department of an army and could not get any coffee and tea and could get milk, I would put caffeine in the milk.

Q. That is, where you would expect to get a vigorous prompt response?

A. Yes, sir; that is what we are after always in this world.

Q. That, however, would not be true, would it, in the case of an ordinary female or child or person under twelve or fifteen years of age?

A. I see no reason why a child ten or eleven years or twelve years of age cannot have a certain amount of caffeine beverage, and the same way with a woman.

Q. And you would give milk along with the caffeine?

A. If you could not get coffee or tea and you wanted a stimulant.

Q. How much do you give to your children daily?

A. I have not any child, I am sorry to say.

Q. Referring to your definition of metabolism, you state that metabolism goes into the mechanical changes brought about —

A. Chemical.

Q. I probably misquoted you. What are those chemical changes which you cover in that general definition of metabolism, what particular chemical changes?

A. That is a great, big, long subject. I can only go into it to a certain extent. It refers to the ingo and outgo and what takes place with the ingo, what becomes of it, how it is changed into the material that goes out, what is built up, what is assimilated, how the changes take place here and there. That is all metabolism.

Q. Under your definition of a poison, is strychnine or arsenic either a poison?

A. In the generally accepted sense, they are, but in the strictly scientific sense, I do not know of any substance that is inherently a poison. That is, you can always take it to an extent that it won't have any effect at all.

Q. You have been testifying from the scientific standpoint with respect to poisons?

A. From the strictly scientific standpoint and also from the popular standpoint, that a poison is usually understood to be any substance which given in relatively small doses, acts injuriously or causes death.

Q. As to the reported cases of serious or permanent consequences following from the use of caffeine in any quantity, I ask you if the Massachusetts Medical Society is or is not a reputable organization and if its journal and minutes are not those of a reputable organization?

A. They are, as far as I know.

Q. They are published and distributed and frequently read by the medical profession?

A. I presume they are, although I have never had access to them or seen any of them.

Q. Now, I ask you to refer to the Massachusetts Medical Association minutes under date of 1887 to 1889, volume 14, and state if you do not find there as many as 163 cases of tea poisoning alone, and also a reference to about 50 others about which no comment is made, making a total of 213 cases of impairment as a result of tea drinking alone?

A. The title of the article is "Relation of Tea Drinking to Disorders of the Nervous System." You get into complications right here. You don't know whether it is caffeine or the other substances like adenin or theophyllin, or especially the tannic acid in the tea which is injurious. I will read this if you give me a moment.

Q. You can tell whether the author ascribes it to theine or tannic acid very readily?

A. He speaks here of chronic tea drinkers and acute tea poisoning.

Q. Note the marked passages as you go along and just answer me.

A. I cannot read all this unless I have at least half an hour.

The Court: You can do that at recess.

Mr. Miller: I am quite willing for him to examine them and there are some others that I will refer him to and hand them to him and let another witness be called.

The Court: Are they all with reference to caffeine?

Mr. Miller: They are caffeine in coffee or tea, one or the other, and one of them is caffeine in Coca Cola, and I should be glad to pass them all to the Doctor without now specifying; just have him look at them.

Mr. Sizer: Will you give the references now?

Mr. Miller: I am going to give the books.

Mr. Sizer: Give us the books and the references.

Mr. Miller: The Boston Medical and Surgical Journal, 1909.

Mr. Sizer: What page and whose articles.

Mr. Miller: Page 608, the article is by Doctor Wesseldorf, of Cambridge.

The one on Coca Cola poisoning is Dr. Keystone, and appears in the Virginia Medical Society Journal, March, 1903, page 154.

Here is one of the Medical Record by Leszinsky in 1901, page 42.

The Witness: Is that an original article?

Mr. Miller: It appears in the Medical Record.

The Witness: That don't tell whether it is original or not.

Mr. Miller: I will let you examine it and see for yourself.

Another is in the Medical News, page 486, by Doctor Wood, published December, 1904.

Another is the Boston Medical and Surgical Journal, 1886, page 314, on Chronic Tea Poisoning.

Another is by Doctor Lemaire, or at least, the article is by him in the French Journal of Medicine, 1909, page 293.

The Witness: Is that in French?

Mr. Miller: Yes.

The Witness: I cannot read French. I can read German, but I will try to have it translated.

Mr. Miller: You could not verify the translation, and we will withdraw that.

The Court: On what point, I want to know, do you offer these?

Mr. Miller: All of these deal with caffeine.

The Court: But on what theory are they competent with reference to what statement on direct examination?

Mr. Miller: This witness stated yesterday, he was asked this question: "I will ask you if there is any reported case of serious or permanent consequences following from the use of caffeine in any quantity?" and his answer was "I have never read of such a case. I know of one case reported where the individual took by mistake so many grains, and so forth —"

Now, what I propose to do, is not to go into details, but to show that these are reputable publications, as I have already shown to one of them, and my object is to show that his course of reading has not been very extensive or he would have seen something of these numerous authorities.

The Court: Was that question asked by the other side?

Mr. Miller: Yes.

The Court: I will rule on that when the matter is presented, I just wanted to get the facts now.

Mr. Miller: The question asked him was:

"Q. I will ask you if there is any reported case of serious or permanent consequences following from the use of caffeine in any quantity."

The Witness: Are those cases all on tea and coffee, or are they on caffeine?

BY MR. MILLER:

Q. I am going to ask you to look at them and state for yourself, and I shall give you ample opportunity to do it. How do you know, if you do know, that xanthine is found in the cell — that xanthine as such is found in the cell?

A. That xanthine, as such, is in the nuclein structure, I have read in the literature.

Q. That is the only way you know it?

A. Yes, sir; the only way I know it.

Q. Will you kindly give us a reference to any reputable author who so states that xanthine as such, that is, xanthine free which can be isolated, is found in the cell?

A. I shall try to look that up. I am sure I have read it.

Q. It is found in the muscular tissues?

A. Yes, sir; it is.

Q. Do you know that by personal experimentation?

A. I know that the purin bases in the body are very much higher in the muscles than in the liver.

Q. What is the difference between the muscular tissues and the cells, don't the cells form a part of the muscles?

A. Of course, the muscular structure is made up of cells, but they are more fibrous, and the nucleus of those cells is much smaller than the cell in the glanular tissues in which case the glands are made up almost wholly of cells.

Q. In which instance was it that you stated that xanthine was sometimes found in trances in the cell?

A. Read the question.

(The question was read to the witness.)

A. I refer to the glandular organs?

Q. What?

A. The sweetbreads, the spleen, the thyroid, the superrenal capsule.

Q. What is the difference physiologically between theobromine and caffeine, if you are prepared to say from your personal experience and observation?

A. I could not say from my personal experience.

Q. Is xanthine, as such, that is in its xanthine form, taken into the body?

A. You mean as it may be found in the food?

Q. I don't speak of its combination, but is xanthine

itself used as a food?

A. No. It may be taken into the body with food, as it exists in some of our foods.

Q. When you answer that xanthine, so far as you know, was a natural stimulant of the human body, or rather that the purin bases were, did you speak from your personal experience or from your reading?

A. From my personal experience, from my experiments and from my reading. I make that deduction.

Q. You have related the extent of your personal experience and the extent of your animal experimentation to the jury, and the remainder of the basis for that answer is made up from your study?

A. Yes, sir; I would say it in this way. I have been drinking tea and coffee ever since I can remember. I started when I was five or six years old, from the experiments I have made on animals and also on the human subjects and from my reading, I read that xanthine is a powerful muscular stimulant and that caffeine is a trimethylxanthine and that is a muscular stimulant, and from that I deduced that xanthine can and must be a natural stimulant to the body.

Q. You state that half a grain of strychnine has caused death?

A. Yes, sir.

Q. What effect would one-tenth or one-sixteenth of a grain have?

The Court: It is not necessary to go into that.

Mr. Miller: That was brought out by way of illustration.

The Court: It is so obvious that strychnine in a certain dose will kill and that it can be reduced so that it won't kill that we shall not go into that.

Mr. Miller: It was an illustration brought out in the examination in chief?

The Court: Yes, and it has been gone into far enough.

Mr. Miller: Then, I move to exclude that if I am not permitted to cross-examine about it.

The Court: The motion is overruled with an exception.

BY MR. MILLER:

Q. What is the difference between theophyllin and theocin?

A. Theophyllin is a trimethylxanthine which exists naturally in the tea. Theocin is a theophyllin made by man, it is a synthetic process. They are chemically identical.

Q. Do you know of any difference in the physiological

action?

A. I do not know that there is any difference in those two products physiologically.

Q. Then, referring to this Allard case, was not that a case of theocin poisoning?

A. It was a case of theocin poisoning so reported.

Q. There were two of those cases reported by Allard in that article?

A. Yes, sir.

Q. Both due to theocin?

A. Yes, sir.

Q. How does the taking of caffeine produce energy?

A. By increasing the muscular action, stimulating the muscles, stimulating certain centers which bring about more activity of certain organs.

Q. Making the muscle act more freely?

A. Yes, sir.

Q. That is what you mean by the creation of energy?

A. Yes, sir; and of course, if the molecule is burned up into urea to a certain extent you would get energy from that, but in a lesser degree, of course.

Q. You, I believe, have appeared against this Pure Food and Drugs Act once as a witness?

Mr. Sizer: We object to that.

The Court: The objection is sustained.

BY MR. MILLER:

Q. The analyses made in your laboratory are paid for at the rate of $2.50 each?

A. $2.50 each?

Mr. Sizer: We object to that.

The Court: The objection is sustained.

Mr. Miller: I asked the witness this question, if he has not stated on former occasions that the analyses in his laboratory were paid for at the rate of $2.50 per analysis.

The Court: I exclude that on the ground that it is entirely immaterial.

BY MR. MILLER:

Q. In those experimentations that you made on rabbits, did you ascertain as to the units of nutrition that were consumed by the rabbit, and if so, how?

A. No, sir; I did not ascertain that, but I gave them all they could eat, I gave them cabbage, carrots, hay, lettuce.

Q. Did you ascertain the nutrition that was excreted?

A. No, sir; I simply made the test on the liver of the carcass of the animal to see whether there was any caffeine found in the urine.

Q. You know there are means of determining whether

or not the weight of an animal is due to the increase of watery substance in his body, or whether it is due to the taking on of physical upbuilding, such as flesh and muscle?

A. Oh, I see what you are after now. Yes, I determined that. I don't think there was more than 75 per cent. of water in the carcass of the animal, which is normal.

Q. Is there any means to determine that?

A. I think so.

Q. And if Doctor Hoyt was the one first to determine that, and if his method has not been followed since — I ask you that?

A. I do not know that he was the first, but I know his method is a very good one.

Q. How did you determine the ingo and the outgo?

A. I gave them all the food they would eat. I was not interested in the amount. I wanted to know what became of the caffeine, whether it had any effect on the structure of the body. The fact that they gained from 10 to 53 per cent. and even to 150 per cent. could not have been due to water, for if the animal gained 100 grains, a 140 per cent. gain, and that was due to water, it would be a liquid walking around.

Q. You could ascertain that by applying a test?

A. I ascertained it was good healthy structure.

Q. What was your test that you applied?

A. The test I applied to the carcass; I weighed it like a butcher does a beef. I weighed the liver, and I know it was good firm meat and good average liver.

Q. Then you simply looked at it and weighed it?

A. That was sufficient for the object I had in view in the experiment.

Q. In looking at an animal in that way and weighing it, how could you determine what percentage of that increase was due to water?

A. By estimating the solid matter and estimating the amount of water.

Q. But you say you don't know how much solid matter the animal had, but you gave him all he wanted to eat?

A. Certainly, gave it all it wanted to eat, and the water I would not consider as a material factor in increasing the weight, it would have to be something besides water.

Q. If as a matter of fact the increase in weight was due to water, then your experiments would not prove whether or not caffeine was a nutrient or not?

A. I never tried to prove in this experiment that caffeine, as to animals, was a nutrient. That was not the object of the experiment.

Q. But I ask you as a scientific man, if it were due to

water, would it prove anything to you as respects the nutrition of caffeine?

A. If it was due to something else, it was not due to caffeine.

Q. Were those young rabbits or not?

A. Three of them were, I would say, young rabbits.

Q. Give the numbers of those three.

A. Nos. 3 and 4 and 6. I would say they were young rabbits because they increased in weight, and No. 5 was a fully matured rabbit, and he was fed caffeine, and therefore did not increase very much in weight, only increased about ten per cent.

RE-DIRECT EXAMINATION.

BY MR. SIZER:

Q. I want to ask you first, about the variations you observed in the percentage of alcohol in the samples of Coca-Cola syrup as analyzed; to what could that variation be attributed?

A. To the process of the manufacture of the Coca-Cola syrup, and in the variability of the amount of alcohol used in making Merchandise No. 5, and further that so little alcohol enters in the Coca-Cola syrup, that even the estimation made by the most careful analyst is more or less a guess as to the amount of alcohol.

Q. Is it true that alcohol is a very volatile substance?

A. It is.

Q. Would that tend to produce variation in the analyses of the two samples?

A. Certainly.

Q. You say you are not a pharmacologist. Is it necessary that one should be a pharmacologist in order to make the experiment and ascertain the result of the conclusions you have testified to in your examination in chief?

A. No, sir.

Mr. Miller: That is reasoning in a circle. That requires no explanation.

The Court: I don't think it requires any explanation. The Court has admitted his testimony.

BY MR. SIZER:

Q. On what do you base the testimony you have given on the percentage of theobromine in chocolate and cocoa, on personal analysis or on literature?

A. In this instance, on the literature. I don't remember my analysis on that.

Q. Look at that diagram which illustrates a tree with the base caffeine and the various branches of other substances. When caffeine is demethylated or transferred

into those other substances, does the caffeine remain on there?

A. No, sir; the caffeine is broken up into the lesser substances. This does not show it exactly. We are not certain that we get these three demethylated substances in the body. We know we get some, but which has not been absolutely shown and then those are broken down further to show the xanthine which the tree don't show, and then what becomes of the xanthine.

Q. That is, caffeine does not reproduce the other substances by a sort of process of degeneration or splits it up into them?

A. Yes, but the caffeine disappears.

Q. That Allard case that you referred to, does the report say what the condition of the patient was before the theocin or caffeine was taken?

A. Very distinctly. They were both suffering from heart disease and chronic Bright's Disease. Their bodies were filled with the fluid and their legs were more or less oedematous, and one, if not both of them was tapped. The theocin had been given to them and then the caffeine and they died, but I don't know whether the theocin killed them or whether they died from the disease.

BY MR. MILLER:

Q. Now, about the alcoholic tests. You undertook to make an alcoholic test in the first instance?

A. Yes, sir.

Q. And you didn't discover any alcohol?

A. In a drink of that kind where you would find .2 of one per cent, I would not consider that any alcohol.

Q. Why did you report alcohol in the next two tests?

A. I got a little more, .48 and .59 of one per cent, but even that is insignificant.

ROBERT L. EMERSON,

the next witness called on behalf of the claimant and the intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. SIZER:

Q. Where do you reside?

A. Boston, Massachusetts.

Q. Give your full name.

A. Robert L. Emerson.

Q. What is you occupation?

A. Chemist.

Q. Where were you educated, and what experience have you had as a chemist?

A. I was educated in the public schools of Cambridge, Massachusetts, and I graduated at Harvard University in 1894. In 1896, I entered Harvard Medical College and graduated in 1900. I spent the following year and three months in Germany studying chemistry, and on my return was appointed a teacher in Physiological Chemistry at the Harvard Medical School where I taught for five years, teaching Physiological chemistry, Medica Chemistry, Toxicology. I left the Harvard Medical School in 1905, and since that I have had a laboratory of my own where I do special research work.

Q. You have the degree of M. D.?

A. Yes, sir.

Q. Have you ever practiced as a doctor?

A. Never.

Q. Your knowledge of the practice of medicine is based simply on your reading?

A. Yes, sir.

Q. From the standpoint of a physiological chemist what is caffeine—in a chemical sense?

A. In a chemical sense, it is a trimethyl dioxide purin.

Q. What effect does it have when taken into the body?

Mr. Miller: He is not qualified to testify on that.

The Court: He said he had carried on a laboratory as a physiological chemist for five years, and I overrule the exception.

Mr. Miller: He has not qualified as a pharmacologist, and has not attempted to qualify himself.

The Court: The exception is overruled. Without defining as to pharmacology or anything else, I think he is qualified to express an opinion on the question asked.

BY MR. SIZER:

Q. State whether or not your field in which you practice qualifies you to express an opinion on that.

A. Yes, sir.

The Court: I have already ruled that I would not attempt to differentiate as between physiological chemist, pharmacologist, and I hold that this witness's experience qualifies him to give an opinion on the question asked.

(The question was read to the witness).

A. It acts as a stimulant.

Q. Is that effect necessarily injurious to the body?

A. Depending upon the degree of stimulation.

Q. Would the quantity taken have anything to do with that?

A. Yes, sir.

Q. I want to ask you if you have made any experiments tending to show the effect of caffeine when taken into the system, either with animals of with men?

A. Yes.

Q. With either or both?

A. Both.

Q. First, state what experiments you have conducted to ascertain the effects of caffeine on the human system?

A. What point of view?

Q. Any point of view; any experiments you have made on a human being with respect to the use of caffeine.

A. We have made some experiments on the central nervous system and some on the nutrition processes of the body.

Q. Take first the nutrition processes.

A. We have studied the effect of tea and coffee and taking Coca-Cola syrup on the nutrition processes of the body in this way:

Mr. Miller: He says "we."

The Witness: I did it personally.

BY MR. SIZER:

Q. You were speaking editorially when you say "we"?

A. Yes, sir. I put two men, one of them weighing about 180 pounds, 23 years old, and another about 105 pounds, about 15 years old, on a certain specified diet, consisting of milk, cream, eggs, malted milk, salt, sugar, water. This diet contained none of the xanthine bases, no purin, and the urine was collected by the men in my presence and the urine analyzed to see what effect the administration of caffeine and Coca-Cola had upon the system. To determine that properly, the men were fed this diet for five or six days and the urine collected as it was passed up to about half-past seven or eight o'clock each morning before breakfast. The breakfast was prepared in the laboratory and eaten there. I might add that those two men were in my employ as chemists, were under my supervision during that whole time. They prepared their own meals under my supervision three times a day and ate them in the laboratory, except that on one or two occasions they took them home for supper, having previously prepared them in the laboratory, and on one Sunday they took them home. The urine was collected in 24 hours, each 24 hours was collected and saved and analyzed. One man was given nine grains of caffeine with his food, for the next five days. During that time the other man took nine ounces of Coca-Cola syrup, corresponding to nine glasses of Coca-Cola as served

at the fountains, but inasmuch as this diet had to be determined definitely, it was not possible to dilute the syrup down with water, as the syrup served at the fountain was. He was only allowed a certain amount of water in addition to this food, and if he had used it at the soda fountain, he would have had too much water. This was kept up for five days and the caffeine and the Coca-Cola given in addition to milk, eggs, and so forth diet; and then they were continued on the diet, but the caffeine or Coca-Cola was removed from the diet and they continued on that for five days. In that way, we had the first five days that the men were on the diet to serve as normal or control for the urine excreted; the next five days show the urine changes undergone in the metabolism or nutritive process in the body, so far as determined by the urine.

The following five days were compared with the first period of five days to show if there had been any disturbance or whether they returned to their normal condition.

The Court: Now, during the second five day period one of them had caffeine in addition and the other had Coca Cola?

The Witness: Yes, sir, and when I say Coca Cola I mean Coca Cola syrup because they were limited as to the amount of water they should take. After the fifteen days, the men were reversed, that is, the man who had previously had caffeine was given Coca Cola, and the man who had previously had Coca Cola was given the caffeine, and that was continued for five days. In the case of the man who had been taking Coca Cola — the case of the man who had taken caffeine was continued six days on account of an accident, one sample was lost, only a small amount left and I wanted to have the thing go through, and then the following days for the Coca Cola man was subsequently a normal period and the following three days was subsequently a normal period for the caffeine man. In that way, they were on the diet 22 days, consisting of milk, cream, eggs, salt, water, sugar.

BY MR. SIZER:

Q. Did you state the quantity of caffeine and Coca Cola that was given?

A. I intended to. The amount of caffeine that was given was six-tenths of a gram approximately nine grains. I will try to give them by the English system hereafter.

Q. Each day?

A. Nine grains each day; and I may add that the first day, through a misunderstanding in the laboratory, the caffeine had been weighed out for the amount and the Coca Cola syrup, and they did not take them in divided doses.

They didn't take them one-third in the forenoon and one-third in the early afternoon and one-third late in the afternoon, but took the whole thing in one dose, the caffeine man took nine grains of caffeine put it on his tongue from the paper and washed it down with a little water; the Coca Cola man took seven ounces of the syrup, followed in five minutes with the remaining two ounces, or six and a half the first time followed by two and a half, he got the whole inside of five minutes, and that was the smaller and the younger man, and the man who took the caffeine went home and went to bed and couldn't sleep, turned up at the office the next morning a little late and I asked him what the trouble was and he said he didn't get to sleep until four o'clock.

Q. Was that a big dose?

A. Yes, sir; the man who took the Coca Cola in the five minutes was a younger boy and he weighed less, and he said that he got to sleep all right about eleven o'clock.

Mr. Miller: I object to that statement of the young man, it is ex parte and not competent.

The Court: The objection is sustained.

The Witness: The 24 hours of urine was carefully saved and analyzed in the laboratory, partly by myself and partly under my own supervision by the men who passed it.

The Court: I understand after the first day, the caffeine and Coca Cola were administered in three doses.

The Witness: I think they took it in three doses.

BY MR. SIZER:

Q. Was that at different times from their regular meals?

A. I think they took the morning dose practically immediately after breakfast.

The Court: Were they eating their other food and diet three times a day?

The Witness: Yes, sir; three times a day. They would get it into their body as food within the 24 hours.

BY MR. SIZER:

Q. And they took the caffeine and Coca-Cola in three doses after the first day?

A. After the first day, they took it as a rule, in three different doses.

Q. How long did it follow the meal?

A. I think that they took it soon after breakfast, the first dose.

The Court: When was the second and third dose?

The Witness: They took the second dose soon after

lunch and the other in the middle of the afternoon.

BY MR. SIZER:

Q. When was the lunch.
A. Soon after twelve, twelve to one.
Q. Well, what do you mean by soon after?
A. Oh, about two o'clock.
Q. And the other?
A. About four or five o'clock.

(The Court here took a recess for twenty minutes.)

AFTER RECESS

The Court met pursuant to recess at 12.20 p. m.

CLAIMANT'S EVIDENCE CONTINUED

R. L. EMERSON,

resumed the stand for further examination.

EXAMINATION CONTINUED,

BY MR. SIZER:

Q. Doctor, you stated that the man who took this caffeine and took the whole nine grains in one dose on the first day reported the next morning that his sleep had been impaired?

A. Yes, sir, he was late showing up and I asked him what was the trouble. After that when he took caffeine I found out or he reported no such condition —

Mr. Miller: I object to what he reported.

Mr. Sizer: Then I object to the other statement as to what was told him.

The Court: As to what?

Mr. Sizer: As to what he told him that he detailed in the first answer — I object to that what he said.

The Court: The objection is sustained.

Mr. Miller: And the entire matter is stricken out?

The Court: As to what this man reported —

Mr. Miller: Yes, your Honor understands I didn't object —

The Court: You didn't object to one statement but to the other —

Mr. Sizer: Then I ask that the statement of this witness as to what was reported be stricken out.

Mr. Miller: Counsel cannot object to what he draws out from his own witness?

The Court: Well the point I rule on or base the ruling on is that he did not call for it, and the witness volunteered the statement, and therefore he has a right to object to any irresponsive and incompetent matter.

The Court: I wish to put the witness right; the witness was simply giving a statement of the entire matter, probably not appreciating what part of it was hearsay —

The Court: There is no reflection on the witness.

The Witness: His statement to me was in reply to my question at the time.

Mr. Sizer: The court rules that out.

BY MR. SIZER:

Q. Now, doctor, you completed your statement of these experiments, did you?

Mr. Miller: How was that.

BY MR. SIZER:

Q. You got though your statement of experiments?

A. I think that is all so far as the experimental part goes.

Q. The reason I ask you if you are through with the statement is I want you now to state the results and conclusions that you observed or that you adduce from the experiments?

A. Of these urines that were collected, the twenty-four samples from each man — forty-eight specimens of urine— we determined first twenty-four hour quantities of the urine, measured it. We next determined the total nitrogen, all the nitrogen excreted in the urine day by day, that is in each 24 hour amount of urine, I mean daily urine of both from day to day.

The total purin nitrogen, or xanthine nitrogen, as it has been called here in the last week or two, and the uric acid in each case.

We also determined in one series, which includes the second normal or control period of the second amount and following the caffeine period of that amount and the following normal period, that is those three periods were taken out, also taken out for another set of determinations—the urine of the first amount—I think I had better carry one man through, the man taking the caffeine first; the first five days urine showed certain variations in the quantity of the urine passed, but these variations were no greater nor less than the variations shown in a series of experiments performed by the man who got up this diet, and which variation of such results has been established as the normal results resulting from the use of this mixed milk, cream and egg diet, that is, the man who got up this diet originally performed certain experiments on humans or men to determine just what the normal average urine was—the amount of urine passed by these experiments—

the amount of urine did not vary essentially from the normal that had been established for that diet. The following five days period during which he took caffeine did not show any variation from the normal in the quantity of urine passed, nor did the succeeding five days urine show any essential difference. In other words, the man No. 1, subject No. 1, for the first part of his experiment when he took caffeine in five days, two five days anteceding, and the five days following, showed no appreciable effect on the amount of urine passed due to the taking of the caffeine. The same applies to the following two periods and taken in conjunction with the third period of the first half which serves practically as the normal for the second half of the experiment — there is shown no appreciable change from the normal other than was seen in the first normal period; there was a rise in the quantity or urine — the quantity of urine was increased the second or third day when he took his normal diet before he began taking the caffeine, and when he gave up the taking of Coca Cola in the second half of these experiments there was also only seen temporary increase, but as such of no significance so far as the effect of either the caffeine or the Coca Cola —

Mr. Miller: (Interrupting) I object to that, it is a matter purely of argument and conclusion; it is not a part of the experiment at all, when he says it is insignificant as respects certain things —

The Witness: Insignificant in amount, I mean.

The Court: The objection is well taken in so far as the answers are vague, as not showing what the witness regards as appreciable. He may state facts.

Mr. Sizer: I was going to say —

The Court: (Interrupting) The witness will just give the facts, and you can express opinions later.

The Witness: The amount of urine did not vary from the quantities that had been established; the total nitrogen was determined on each sample of urine for the subject No. 1 and that also does not show any variation in the amount from previous standards established for this diet, so that the purin nitrogen was determined by a method known as the Kruger & Wolff method, which is a precipitation of the purin nitrogen, or xanthine nitrogen, as it has been called, by sodium bisulphate and copper sulphate and the nitrogen determined, and that shows an increase on certain days but not on others, but the amount of increase is variable and agrees in a way with the amount of purin nitrogen that was given to the man in his diet when he took caffeine or Coca Cola syrup — the diet itself does not contain any purin nitrogen. The uric acid was determined and this

shows in some instances a slight relative increase, that is from day to day, but the increase is within the limits or within what has been established as the normal quantities, so that it does not vary from those quantities in man. The second subject who during the first half of the experiment took Coca Cola —

The Court: (Interrupting) In order to save time I think it would be well to have this witness just state amount and quantity — his statement is it does not vary appreciable from normal affords very little information for the jury; we do not know what his opinion is as to normal and slight variation—let him give amounts, if he says normal indicates so much, let him state what normal is and how much it varies from it.

BY MR. SIZER:

Q. We will ask you to do that, doctor, or he might file his notes showing —

The Court: Let him give the details and facts —

Mr. Sizer: State as a matter of fact how much the variation was from day to day.

The Court: And the quantities.

The Witness: The amount of urine established for this diet varies from thirty to seventy ounces of urine in twenty four hours. The amount or urine passed by the first subject started at sixty ounces, increased to eighty ounces, diminished to thirty-four ounces and varied between that and thirty-six ounces until the end of that period, that is, those variations are within the normals established.

BY MR. SIZER:

Q. What is the normal range of variation?

A. Between thirty and seventy ounces. The second half of the first man's experiment varied for the first twelve days between thirty-three ounces and forty-three ounces; the following day it went to seventy ounces, and a subsequent date to that, which is the last day returned to forty ounces.

The Court: I do not know what you mean by the second half — you mean period?

A. Yes, sir.

Q. When did you commence?

A. The first three periods are taken as the fore normal and the after normal period of the second period.

Q. When had you begun your experiments?

A. The second period began with the third period, which represents the fore part of the fourth period and runs through to the fifth period, that is, the middle normal

is used as the after normal of the first half, and the fore normal of the second half of the experiment.

Q. I think it would lead to less confusion if you would describe them as the first, second, third, fourth and fifth periods, are you able to do that?

A. Yes.

Q. Then we will understand it better?

A. Yes, sir. The total nitrogen on this diet varies from one-half to one and one-half grams—no ounces—no grains, from one grain to nearly a grain and a half—no, that is one-half ounce, from one-half ounce to nearly three-quarters of an ounce. These figures are the metric system and have to be changed over, and the variation of the first period or the first subject was from three-sevenths to a little over half an ounce; approximately the same in the second period, not quite such a wide variation in the third period, varying from ½ounce to 6/10ths or 3/5ths. In the fourth period it varied from one-half ounce to about the same and also in the last or final period. The amount of purin nitrogen has not been established, or has no standard established for this diet, so far as I can find, because the man who got up the diet did not determine the purin nitrogen at that time, and we were obliged to take our figures here as applicable to these individual cases and to compare the experimental period with one of the normal periods to show any increase or decrease. They vary in the normal period from three to four or four and a half grains of nitrogen. In the experimental period from three to four or four and a half grains, and in the subsequent period practically the same. In the fourth period they varied from a trifle over three grains to six grains, and in the subsequent period from five or six grains to three grains. The results of the subject No. 2 are practically the same comparatively except with the variation in amount of urine in this subject in the first and second period varied more or less, but I do not consider that has anything to do with the experiment —

Mr. Miller: I object to —

The Witness (Continuing) Any man's urine varies in quantity from day to day as a matter of common knowledge, and the amount passed on one day reached eighty ounces and was followed by a dropping off on the following days simply because he did not have enough water in his system; he had excreted that before. The conclusions from these experiments can be summed up briefly, I think, by saying that the administration of caffeine even in large doses, comparatively large doses, as these were, is without any effect upon the amount of urine or upon the amount

of nitrogen which is taken to a certain extent as an indication of the intake and outtake of the body, nor does it show any very great variation in the purin nitrogen beyond that accounted for by the taking of that kind of nitrogen; nor does it have any effect upon the uric acid, the amount of uric acid.

Q. Now, doctor, did you ever conduct any experiments to determine the effect of caffeine on the central nervous system?

A. Yes, sir.

Q. And if so, state what?

A. We did some experiments on the central nervous system — on the human central nervous system. This is rather a difficult proposition because we have not the wide range with man that we have with animal experimentation. A person who is nervous or excited will respond to another person asking him a question sometimes quicker than he will if he is not nervous or excited or stimulated. If he is depressed or drowsy he will respond very slowly, and even with the same question on different days according to how the man feels. The time that elapses between the perception, as we call it, of that sound or that question, and the acknowledgment of the receipt, as it would be in case of a question, if it was a simple question, consumes a definite length of time, and if that time is measured carefully it can be taken to show whether there is stimulation or whether the man is stimulated, or otherwise, as to whether the time is shortened, which denotes stimulation, or lengthened, which shows depression, so to speak. To do this in an experimental way and accurately you can set up a clock which has two revolving hands on it, one of which indicates 1/100th of a second, and the other is divided into 1/1000ths of seconds, and by giving a sound prearranged so that a man will recognize it or can indicate when he heard that sound, and the time between the time he heard it, and he says he heard or shows he heard it can be measured — the sounds or stimulae received by the ear or by the eyes are better than those necessitating touch or pain or pin-prick, sometimes it is used, but that is objectionable for the reason that the person gets the habit of drawing away from heat or cold or shock during his life and he reacts by reflex action, which does not show that the stimulation passed through his brains, but it may have gone through his spinal cord —

Mr. Miller (Interrupting) I object to that because this witness has not shown he is a psychologist or that he has made a study of it.

The Court: I allow the methods to be shown.

The Witness: The experiments were performed as follows: This clock that measures the time is set up — and an electric circuit with two keys — when both keys are in circuit the electric current passes through the clock and one hand revolves — if the circuit is broken the clock stops —the first key is the operator's key, the man we speak of as the operator or subject — the experiments were conducted by another doctor and myself on each other; the other doctor is not addicted to the use of caffeine or does not use caffeine in any way, rarely takes a cup of coffee. As for myself, I take it — so we had or we represented two types of people so far as caffeine or coffee is concerned; the circuit being closed and open at the operator's end, the minute he closes that circuit the clock starts and the minute the subject breaks the circuit the clock stops, and the time between the turning on and breaking of the circuit done by the two operators represents the time taken for the subject to receive the sound and interpret and break the circuit by his finger on a lever. The normal reaction time was determined for both of us on a series of experiments on different dates involving this experiment. We determined what our reaction time, so to speak, in normal or under normal conditions; he had his usual breakfast, and I had mine. These experiments were performed about three hours or two hours later. We then took each of us, in addition to that, small doses of caffeine, three grains, and got our reaction time; we found that there was a shortening or lessening of the reaction time. We then took larger doses of four and six grains of caffeine, and were were enabled to still shorten the reaction time. We then did comparative experiments, using Coca-Cola — we took 6½ ounces or 6 2/3 ounces of Coca Cola syrup with water, not very much water, but Coca Cola syrup, and obtained our reaction time. The reaction time was not as quick as it was when we took the plain straight caffeine, in doses of four, six and seven grains.

BY MR. SIZER:

Q. Have you ever had any personal experience with the use of caffeine?

A. Yes, eleven years ago, this time of the year, I was working rather hard, very hard, getting about four to four and one-half hours sleep every night for a period of nearly six months, and I took four or five cups of strong coffee every day, and, in addition, three to five grains of caffeine approximately every evening, so as to work until one or two o'clock the next morning. That continued for nearly six months. When the work was over which kept me up

nights, the caffeine was discontinued.

Q. Did it result in any serious consequences to your health?

A. Not in so far as I have been able to observe.

Q. Do you drink any caffeine-containing beverage regularly?

A. I drink two cups of very strong coffee every morning and sometimes take coffee in the evening.

Q. And about how much caffeine in the course of a day do you average?

A. I have often analyzed the cup which I drink. I make it myself every day and it contains over three grains of caffeine; I will drink a cup and a half to two cups, which contains over three grains.

Q. Which contains about three grains?

A. It will run three and a half.

Q. And that would make six or seven grains of caffeine for the two cups?

A. Yes; and I sometimes take additional caffeine when I am going to be up late at night, and do any extra work.

Q. Have you been following that practice for a number of years?

A. Eleven years off and on, as I spoke of this other time when I did it continually for a long time.

Q. Is your general health good?

A. Fairly well most of the time.

Mr. Sizer: You may cross-examine.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What is your weight?

A. Two hundred and ten.

Q. And what is your age?

A. Thirty-eight years.

Q. Dr. Wesener, who has just preceded you, does he weigh more or less than you do?

A. I don't know.

Q. Well, you are capable of judging, you are a medical man, you are capable of judging as a medical man?

A. I imagine he is a little heavier, but not as tall.

Q. I didn't ask you as to the height. Now, as to the income and outgo you observed — I will ask you to state if it is not true that an insane man, a man with an utterly disordered brain, the brain may be measured by the same method that you applied and with approximately the same results, or that approximately the same results may be obtained?

A. I don't know of any experiments on the insane man

with this particular diet; I couldn't say.

Q. As a medical man now?

A. I am not a medical man in the sense of a practicing physician.

Q. Then these opinions which you have expressed here are not the opinions of a physician?

A. No, not of a practicing physician.

Q. Are they those of a man who is learned in the science of medicine?

A. Yes.

Q. Then, as a man who is learned in the science of medicine, I ask you if it is not true that you can take an insane man — one who has a disordered brain, due to caffeine, or anything else that overstimulates the brain, and get approximately the same results that you get as to nitrogen and urine?

A. I don't know, sir, I never did it.

Q. What is your opinion as a medical man?

A. I know of nothing on which to base an opinion.

Q. You are utterly unable to tell us or to express an opinion that is worth anything from your point of view?

A. So far as it applies to an insane person.

Q. You know of no reason why there should be any difference?

A. No, sir.

Q. Now, if any substance is detrimental to health or a harmful ingredient, can you so dilute it that its effect is nil or nothing physiologically?

A. Practically, Yes.

Q. Didn't you state, doctor, on the contrary, when you were examined as a witness in what is known as the "Bleached Flour" case at Kansas City, no, well, at New Orleans, then?

A. I would like to know what you refer to there.

Q. Well, were you asked this question (reading):

"Q. Is it possible, in your judgment, speaking of substances of which three or four grains was a medicinal dose, is it possible in your judgment to so dilute it as to make its effect nothing?"

And you answered "No, sir."

Mr. Hirsch: Let Mr. Miller state what that substance was.

Mr. Miller: I have stated a medicinal substance.

Mr. Hirsch: State the substance.

Mr. Hirsch: Nitrates, and one of which the medicinal dose was either three or four grains, according to this witness' statement. I am asking him as to a harmful ingredient, and I am proceeding, of course, on the theory that I

am going to establish caffeine is a harmful ingredient, and I think I have made out a prima facie case on that point.

The Court: What has this witness' opinion on that question got to do with it?

Mr. Miller: I asked him whether or not it is possible to so dilute a harmful ingredient as that its effect is nothing physiologically?

The Witness: My answer there practically yes.

BY MR. MILLER:

Q. I ask you now if you did not give previously the answer "no" in a former deposition or testimony when you were speaking of a substance that was harmful?

A. That answer was distinctly from a scientific point of view.

Q. Are you testifying now from a scientific point of view or a humane, or a physiological point of view, or what point of view?

A. I think my previous answer shows that I mean in the common acceptation of the word.

The Court: You state that you made that answer and that speaks for itself.

BY MR. MILLER:

Q. Did you make that answer?

A. Yes, sir; with certain qualifications, if I remember rightly, which show that it was made from a scientific point of view.

Q. Without reading but two answers —

A. If you read the context you will find.

Mr. Miller: I shall be glad to read the three:

"Q. Either from your experience or what you read, do you know what is a medicinal dose?

"A. From one and a half grains to three or four grains.

"Q. Now, is it possible in your judgment to so dilute that as to make its effect nothing?

"A. No.

"Q. You could not so dilute that but that it would have an injurious effect upon the individual to whom it was given?

"A. No, sir."

Now, I ask you as applied to caffeine, assuming that it is a harmful substance or deleterious ingredient, if it is possible to so dilute it that it would not have a harmful or deleterious effect on a person consuming it.

A. Yes, sir — harmful or deleterious effect, — yes.

Q. It would have a harmful or deleterious effect?

A. No, sir, not in my opinion.

Q. If that be true of caffeine, why would not it be true of any other chemical substance of which the medicinal dose was three or four grains?

A. In the nitrate case to which you refer — red, — no. That is, take the action of the nitrate with the blood, that we can demonstrate. We do not know with the same degree of exactness the chemical effect of caffeine on the tissues, though.

Q. The harmful effect, in your opinion, is one of quantity, is that it — depends on what is taken?

A. You mean the deleterious and harmful effect?

Q. That is what I said.

A. Yes, sir.

Q. It depends on the quantity taken?

A. Yes, sir.

Q. And that is true as to caffeine, but not as to other medicinal agents or harmful substances?

A. I do not know what you refer to as others, but in such instances it supplies to others.

Q. But as to the caffeine you think it does not?

A. I think the effect of the caffeine is dependent upon the dose.

Q. Are the effects of the administration of the harmful ingredient not ultimately the same physiologically?

The Court: What does that mean? I do not understand that.

Mr. Miller: Whether you administer it in one way or the other. Various methods of administering caffeine have been shown and I want to know whether the effect of administering from a physiological standpoint is the same.

The Court: Limit that to caffeine.

Mr. Miller: I do not think it should be confined to that, in view of the particular cases of other substances, and therefore I will note an exception.

The Court: Note the exception.

BY MR. MILLER:

Q. I would like to put that question in this form: Assuming that caffeine is a harmful substance or a deleterious substance or a poisonous substance, does the ultimate effect physiologically or not depend upon the manner of administration?

Mr. Sizer: I object to the form of that question. He can ask him whether or not the effect of caffeine depends on the administration, but I submit the first part of the question is not competent.

The Court: The exception is sustained.

Mr. Miller: Note an exception.

The Court: The exception may be noted.

BY MR. MILLER:

Q. Does not the increase in the quantity of any harmful ingredient introduced into the body have an increased harmful effect or produce a harmful effect, practically?

The Court: That question is ruled out unless limited to caffeine.

Mr. Miller: I am proceeding on the assumption that I am able to establish that caffeine is a harmful ingredient.

The Court: If you want to ask the witness the effect of caffeine, ask him, but we won't go into questions of that sort.

Mr. Miller: Of course that excludes every hypothesis laid with our witnesses and forces us to accept his conclusion.

The Court: He has not testified to any such thing on direct examination. He testified about certain experiments, and if you want to ask him about caffeine, you can do so; otherwise the Court excludes this question.

BY MR. MILLER:

Q. What is a medicinal dose of caffeine?

A. Taken from the Pharmacopœia, taking that as a standard, I believe it is one grain.

Q. What is meant by a dose?

A. The amount given —

Q. I know, but medical men have a particular meaning attached to the word dose. What is meant by a dose?

The Court: I do not know that I recall the particular evidence on that.

BY MR. MILLER:

Q. You do not know what a dose means, do you?

A. Yes, sir.

Q. What do you think is meant by a dose?

A. The amount given to a certain individual is a dose.

Mr. Sizer: The witness is not qualified as a practicing physician.

The Court: I do not see the bearing of that.

Mr. Miller: He stated his opinion on the stand was based in the first place on his knowledge acquired as a medical student and that the opinion he has given was in part that of a student of medicine and he professes to be a man learned in the science of medicine; and if I cannot ask that character of man what he means by the term dose when he repeatedly uses the word dose throughout the examination in chief, pray how am I to go on?

The Court: I ask you what was the bearing. If the

object was to ascertain what he meant when he used the word on direct examination, or what is a dose from his medical knowledge, you can ask the question. Answer the question, what you meant by dose on direct examination.

The Witness: I have answered it.

BY MR. MILLER:

Q. By dose is meant what is given?

A. Yes, sir.

Q. And what did you mean by the term large dose when you stated that one of these men — you say you have two in your laboratory — was given a large dose, namely, three grains, did you mean that was normal or abnormal?

A. Three grains?

Q. Nine grains a day, three at a time.

A. I consider nine grains a pretty large dose.

Q. You said three grains after meals or at meal times, and you stated, if I recall correctly, that that dosage was relatively large.

A. I have stated that he was given nine grains a day and his Honor asked me how that was given and I said he was given a dose three times a day, three grains three times a day. I did not say that three grains was a large dose.

Q. Didn't you in that same connection subsequently in forming your conclusion as to the effects of caffeine on these men, state that given in relatively large doses the effect would be so and so, having reference to three-grain doses?

A. No, sir; I had reference to the 24-hour quantity of diet as well as caffeine, because the urine was analyzed for the 24-hour quantity. If I had made my examination every three hours I should have based my dosage on what was given, the three or four grains.

Q. As you use the term relatively large dose, what did you mean?

A. I consider nine grains a large relative dose, larger than people would take in their coffee.

Q. What was the result of the control — the men you had under control, — as compared with the ones who took the caffeine? I would like to get those two results in a general way.

A. Each man was his own control.

Q. And how much he took after he left the laboratory you don't know?

A. I have their statements sworn to before the notary on the diet and the collection of urine; he gave it to me and he had no other diet.

Mr. Miller: I move to exclude the testimony.

The Court: That answer is excluded, but the testimony is not excluded. The jury will determine the value of the experiments.

BY MR. MILLER:

Q. Then I understand that you did base your opinion as to the result of this experimentation on the statements of these men made to you under oath?

A. Yes, sir.

Mr. Miller: Then I move now to exclude that, too.

The Court: The motion is overruled.

Mr. Miller: With an exception, please.

The Court: The exception may be noted.

BY MR. MILLER:

Q. Do you profess to know what effect the administration of caffeine has on the metabolism or do you know anything about that?

A. This set of experiments was performed solely for that purpose. I know of no other experiment in the literature on the subject of caffeine done under proper precautions — careful work.

Q. By proper precautions you mean to permit a man to go out and then accept the statement the next day?

A. He was not under my observation from six o'clock at night until eight o'clock the next day. I relied on his statements for that time.

Q. Did you state on your examination in chief that this administration of Coca Cola syrup and caffeine as the case may be, had any retarding influence on the metabolism?

A. No, sir.

Q. Did you state that it increased the metabolism in any way?

A. I don't think so. I don't think it has any effect one way or the other in general.

Q. The experiment you conducted on these men would not disclose what if any effect the administration of this drug might have on the brain because you did not examine that?

A. Not on the brain, except so far as manifested by symptoms, and the only symptoms mentioned were those that have already been excluded.

Q. The fact is, by dose you mean anything that produces symptoms, don't you — by medicinal dose you mean what produces a symptom?

A. You may give a dose and fail to get any observable symptoms.

Q. But what is ordinarily understood by a dose is what will give a symptom, give a result, in other words?

A. It may not give any result that you can see, but we do not know what is going on inside when you are working with a man.

Q. All the tests which you resorted to on the two men in your laboratory and which were based on those statements after they left you, prove nothing as to the consumption of brain or nerve tissue — did they disclose anything in that line?

A. No, sir.

Q. You made no observation as to that save just what you could see by the naked eye?

A. I would say also what they told me.

Q. And none as to the heart, either?

A. No, sir.

Q. You made no observation as to that?

A. They were under my observation and they said nothing.

Q. What do you mean by normal as applied to the urine?

A. In the connection in which it was used in these experiments, it was normal, found to be excreted by themselves, of the men who kept the data.

Q. You didn't see the men while they were away from you and you do not know how much they drank or what they drank while they were from under your observation?

A. Except that they made their statements to me under oath.

Q. As to what they ate while they were away from you, you do not know except from their statements?

A. That is all.

Q. Had you analyzed the urine up to the time you commenced to make this analysis?

A. Analyze their urine?

Q. Yes.

A. No, sir; because they were not on the diet which they began to take.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Was there anything in the appearance or conduct of these two men during the time they were going through the experiment to indicate any abnormal waste of brain or nerve tissue?

A. Absolutely not. I might say in that connection that one of the men had been in my employ two years and he appeared perfectly normal.

Q. I will ask you whether or not you have any personal knowledge of any of these cases to which counsel for the

Government referred on cross-examination of Doctor Wesener as being cases showing serious results from the use of caffeine.

A. The only case that I can recall is one he quoted by Doctor Ammore, but I have not consulted it since he spoke of it. I understood he wrote an article on Coffee in the Boston Medical and Surgical Journal.

Mr. Sizer: Did you refer to that, Mr. Miller?

Mr. Miller: I referred to all of those.

The Court: Attention was called to a hundred and fifty cases and many of the cases not named. Let him take the books and examine as to that.

BY MR. SIZER:

Q. Now, state what you know about that case of Doctor Ammore — the case that he reports, what you know about the facts.

A. That is, supposing it is the case about which I know.

Q. If you do not know, you had better come down and read the case and I will put you back on the stand.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Where did you conduct this supposed experiment about which you have talked, where one man ate caffeine and one Coca Cola?

A. You mean, my experiment?

Q. Yes.

A. In my laboratory.

Q. Is it not true that Doctor Tyrode who testified was first asked by you to conduct that experiment because you did not know how to conduct it?

A. No, sir.

Q. Didn't you apply to Doctor Tyrode first?

A. No, sir.

Q. You had no conference with him?

A. No, sir.

Q. You do not know the Massachusetts Medical Association?

A. Yes, sir.

Q. And the Boston Medical and Surgical Journal.

A. Yes, sir.

Q. Those are reputable publications and a reputable association?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Now, I hand you the report of the Ammore case and

I ask you to state if you know anything about that case, and if so, what.

A. I read this case some two years ago, nearly two years ago; in connection with this publication Doctor Ammore was a personal friend of mine when he was alive. and he brought to my laboratory certain coffee extracts which he himself prepared along the line about which this article was written, and he asked me to analyze them.

Mr. Miller: I object to any statement of what took place between him and Doctor Ammore.

The Court: I sustain the objection.

Mr. Sizer: Here is the report made by Doctor Ammore as to certain experiments and I submit that anything that occurred between him and the witness is competent.

The Court: I have not ruled that that article by Doctor Ammore is competent yet. I will wait until they present it. At this point I think I may say something in regard to my ruling as to Doctor Wesener's views as to the experiment conducted by certain of the Government witnesses.

I intended to limit the ruling to allow the Doctor to state his opinion of the accuracy of the methods employed for determining accurate results, and my recollection is that in his answer he went a little bit beyond that and stated matters that were somewhat argumentative as bearing on the effects of those results on this litigation, and I should like to have that answer written out so as to exclude part of it. I think it is my duty to exclude a portion that went beyond what I intended to admit.

(Witness excused.)

JOHN F. QUEENY,

the next witness called on behalf of the Claimant and Intervenor, The Coca Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Give your name.

A. John F. Queeny.

Q. Where do you reside?

A. St. Louis.

Q. What connection have you with the drug and chemical trade?

A. I entered on a job in the drug business some thirty-nine years ago when I was twelve years old as a boy. I got a job in a drug house and from that position I went into the order department, and then into the wet room where the essential oils and extracts were put up; then to the shipping room, then city buyer, finally in charge of

city sales, with John E. Kings, of Chicago. Went from there to New Orleans as buyer and remained there ten years, went from there to Los Angeles, and remained there a year; and then to St. Louis with the Meyer Bros.' Drug Co., with whom I was connected for twelve or thirteen years. In that period I omitted one period of three years when I had charge of the sales of the Merck & Co., chemical company, and I opened this branch for Powers & Whiteman at St. Louis.

Q. What opportunity have you had to gather statistics on the question of tea consumption, and have you the bases of your statistics with you?

A. I have had every opportunity for the reason that in the company of which I am now president and general manager we buy quite considerable quantities of tea and occasionally of coffee.

Q. Have you compiled any statistics showing the sale of coffee and tea, and if so, from what did you compile them?

A. I have compiled some figures on certain periods from the statistics issued by the Bureau of Statistics of the Department of Commerce and Labor, covering a period since 1824.

Q. Have you those books with you?

A. Yes, sir. The figures I have here taken from those statistics at certain periods and I have made statements covering periods from 1850 and from 1870 and 1880, and 1900 and 1904, and with permission I will put them on the board.

The Court: I have not ruled on that yet.

Mr. Hirsch: We have the books.

Mr. Miller: We have no objection to that. Let him make the statement.

BY MR. HIRSCH:

Q. Now give us the amount of coffee and tea taken from those statistics.

A. I have calculated the caffeine in the tea at 2¾ per cent., and I have calculated the coffee at 1 3/10 per cent.

Q. Now explain how you work that out.

A. The Bureau of Statistics' figures of the Department of Commerce and Labor, published July, 1905 — I have taken their figures of the importations and also their figures of the exports, and deducting that leaves the quantity left in the country for consumption.

Q. From that did you or not obtain the exact figures?

A. I have not put down here the exact figures because they run into so many figures — for instance, when I say 28,000,000, the quantity is over 28,000,000. Every figure

here is an underestimate rather than the exact figures in the statistics as they are given here.

I have tried to make them sort of general, and I also have here the exact figures which I shall be pleased to read.

Q. Have you figured out the caffeine content, and if so, how as to the tea and coffee for the year 1909?

A. Yes, sir; I have.

Q. Give that.

A. The figures I have of the world's consumption of coffee were taken from the Coffee Exchange of the City of New York and the consumption of caffeine during that season of 1909-1910 was 2,388,998,568 pounds. I have not calculated the caffeine content in that coffee.

During the season of 1908-1909, the quantity was 2,461,747,464.

For 1907-1908, 2,313,355,976.

Q. Where did you obtain the percentage of caffeine in that coffee? Did the Government give the statistics?

A. The percentage I calculated on was based on our own experience and I have the Government figures.

Mr. Miller: I do not object to that. Just give it to us.

The Witness: The Government figures are 1.35 per cent., but I based it on 1.3 per cent.

The world's production of tea as shown during the season of 1909-1910 is 1,200,000,000 pounds and that is taken from the United States Consular report of Nov. 15, 1910.

BY MR. HIRSCH:

Q. What about the percentage of caffeine found in tea?

A. I calculated on the basis of 2.75 per cent. The Government figures run a little over 3 per cent.

Q. Can you figure approximately how much caffeine was in the entire coffee for the year of 1909?

A. Yes, sir.

Q. Give us that statement.

A. Over 60,000,000 pounds of caffeine. I have here also the figures of Matte and Paraguay tea which are quite important in my opinion in the quantity of caffeine to be shown. May, 1905, 110,000,000 pounds of Matte or Paraguay tea, containing caffeine 1.25 per cent., showing consumption of caffeine in Matte of 1,375,000,000 pounds.

I have also the figures of cocoa, if they are of interest. I had the figures on cocoa made out, but I heard some argument on the content, so I modified my figures. The consumption is changed in the quantity. In the United States in 1894 over 17,000,000 pounds.

1897, over 21,000,000 pounds.

1900, over 41,000,000 pounds.
1903, over 62,000,000 pounds.
1909, over 117,000,000 pounds of cocoa.

I have figures also on the consumption of other countries, if they are of interest.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Now, on that importation of cocoa, of course, as a result of that, the cocaine, the morphine, and the opium had increased rapidly?

A. This is cocoa from which chocolate is made.

Q. But, as the effect of that importation, morphine, opium and cocaine have rapidly increased in consumption.

A. I think they have decreased of late.

Q. Have you figures on that?

A. I have statistics, I think.

Q. Will you oblige us with them, not now, but at your leisure, and verify that statement?

A. I don't put that forward as a statement. I am speaking of my own practical observation.

Q. I asked you to do that and ascertain and then file as exhibits in this case.

A. You mean the comparative consumption of opium and morphine and cocaine?

Q. Morphine, opium and cocaine.

A. Very little morphine is imported.

Q. Also show the consumption of coca.

A. I will do all of that if the records are in these statistics that I have.

BY MR. HIRSCH:

Q. For how many years?

Mr. Miller: The last ten years.

The Witness: Of course, if they are not there, I cannot give them.

BY MR. MILLER:

Q. How far do you go back with the tea and coffee?

A. That is given here. This is issued by the Department of Commerce and Labor and it applies to tea and coffee and all caffeine-bearing products.

Q. You will be good enough to compile the statistics as to the facts of the consumption of opium and morphine and cocaine, covering the same time as you have covered with this coffee and tea matter.

A. I will do so. But there is very little of cocaine imported, as such, and very little morphine, for the reason that the duty makes their importation prohibitive, but the raw material is imported, but no one can say whether

the articles go into cocaine or whether they go into some pharmaceutical houses to make fluid extracts of coca. It is almost impossible for any one to give accurate information or an accurate statement as to those things, because so many of those are consumed in that way. Opium enters into so many preparations, paregoric and laudanum, and they don't show the quantity of morphine produced from the quantity of opium.

Q. But that don't apply to coca?

A. Coca also enters into various preparations.

Q. I am speaking of what is imported under the name of coca.

A. I doubt if there is any accurate record kept of that in the statistics, but I will refer to them. You cannot get any record of cocaine produced from the coca leaf, however.

Q. I don't ask that.

A. I thought cocaine was one of your inquiries?

Q. I did ask as to whether or not the consumption of it was on the increase.

A. I don't know how to get any record for that.

Q. If you cannot ascertain that, we will pass over that. You are a very large manufacturer of caffeine?

A. We are manufacturers.

Q. You sell it to the world?

A. We sell it to the United States.

Q. You sell to the Coca Cola Company?

A. Some to the Coca Cola Company.

Q. Now, in compiling these statistics as to the tea and coffee, you did not compile statistics as to the people who have been poisoned by the caffeine contained in tea and coffee?

A. We are in the manufacture of caffeine and we never heard of anybody being poisoned by it.

Q. You did not examine the works referred to this morning in your presence as containing cases of tea and coffee poisoning?

A. No, sir; it would hardly be necessary. In the line of work we are engaged in, if I heard of any poisoning, I might follow it closer.

DR. RUDOLPH WITTHAUS,

the next witness called on behalf of the Claimant and Intervenor, The Coca Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. SIZER:

Q. Where do you live?

A. West Thirtieth street, New York.

Q. What is your occupation?

A. I am a chemist and toxicologist, and teacher of those subjects.

Q. State your training as a chemist and toxicologist.

A. I graduated from Columbia College in 1867. Then I studied in Paris at the Sorbonne and the College de France. I graduated in medicine at the University of the City of New York in 1875.

Q. Have you had experience as an author and instructor in either chemistry or toxicology?

A. I have. I began teaching of those subjects in 1876 and I have been doing so ever since.

Q. Now, as an author—have you written any books?

A. Yes, sir. I wrote a small book on chemistry for medical students. I wrote a laboratory guide for medical students. I wrote a chemistry for medical students now in its sixth edition. I wrote the toxicological parts of the system of medical jurisprudence, the second edition of which is now in press.

Q. What is that work?

A. Witthaus & Becker's Medical Jurisprudence and Toxicology.

Q. Are you a teacher of chemistry and toxicology in any institution?

A. Yes, sir, I am a teacher of chemistry and toxicology, and medical jurisprudence in Cornell University, and Emeritus Professor in the University of Des Moines.

Q. Have you acted as chemist of any municipal body?

A. I was chemist of the City of Buffalo when I lived there, and also chemist of the State Dairy Commissioners of the State of New York.

Q. Have you had any experience testifying an an expert, either on the subject of chemistry or toxicology?

Mr. Miller: I will agree that he is an expert witness, if you want me to agree to that.

Mr. Sizer: I prefer to have the witness answer that.

Mr. Miller: Then I object to the question.

The Court: I sustain the exception.

BY MR. SIZER:

Q. What is toxicology?

A. The science of poisons.

Q. In how many different ways and methods can a substance taken into the body produce either poisonous or deleterious results?

A. A substance may produce deleterious results in several different ways. In the first place, it may act me-

chanically and produce disturbances in that manner. For instance, in the case of glass or other fragments, or by physical action as in the case of extremely hot water, or it may produce deleterious results by local chemical action which destroys the tissues with which it comes in contact, like sulphuric acid, or it may produce deleterious results by organized material which occurs in the system and produces detrimental results, and it may act chemically upon the blood as in the case of illuminating gas, or it may be carried by the blood to other parts of the body and there produce chemical action which is detrimental, which is the case in true poisons; or substances can be taken in excessive quantities, substances naturally taken may also when taken in excessive quantities produce deleterious results by the increased quantity.

For instance, you may take too much food of one kind or another.

Q. Does your answer cover all the methods by which substances taken in the body may produce deleterious results?

A. All I know of.

Q. Do you know the substance caffeine?

A. I do.

Q. Is caffeine treated of as a poison in any American work on the subject of toxicology, or in any work written in the English language?

Mr. Miller: That is simply another way of presenting what the witness should state. I suppose this man has an opinion of his own which he is prepared to give.

The Court: I think the exception is well taken.

Mr. Sizer: Without wanting to argue the question further, the particular subject is treated of in works that are standard on the subject and it seems to me it would be evidence as to whether it was considered in that class.

The Court: It seems to me that the objection is well taken. It is simply a way of stating the medical authorities, and I rule that is not competent.

Q. Now, would this substance caffeine act deleteriously when taken into the human system in any of the methods and manners heretofore described by you, and if so, in which of them?

Mr. Miller: I submit he should describe the effect and then let the jury determine whether it is deleterious or not.

The Court: The exception is well taken. He can state the facts with the qualification that I have heretofore stated, whether they have injurious effects on the general health, and he can describe the specific effects without

giving the general.

BY MR. SIZER:

Q. I will ask you to describe what the effect of caffeine is when taken into the system, especially caffeine taken in beverages containing it, and then you may state whether or not in your opinion the effect you describe is injurious to the general health of the person taking the caffeine.

A. It is absorbed from the alimentary canal, more or less, and carried into the blood, and dissolved and carried into the several organs and tissues of the body. If taken in exceedingly large quantities or by a person who is afflicted with an idiosyncrasy against it, it may produce unpleasant or deleterious results. That is the only way in which I conceive that it can do that.

Q. Would those results be serious or of a permanent nature, or of a temporary nature?

A. Of a temporary nature.

Q. Is there any reported case known of death—that is, any authentic case of death, resulting from caffeine?

A. None that I know of.

Mr. Miller: I object to that question for the reason heretofore given, because that is another way of corroborating the witness by medical authorities.

The Court: The exception is well taken. He may state his opinion as to whether caffeine can produce death as the result of his experience and reading, but he cannot state on direct examination the contents of any medical authority.

BY MR. SIZER:

Q. From your experience as a toxicologist and from your reading of the literature, is caffeine a substance which in any quantity produces death?

A. I do not know of any such case.

Mr. Miller: In so far as that is based on literature, I object to it. That brings in the same question again.

The Court: The exception is overruled. I have uniformly endeavored to rule that while a witness cannot state the effect of the substance of the authorities on direct examination, he can state his own experience as an expert based on his own experience and observation and experiments and reading of general scientific authorities, and then if it appears that his opinion is based in part on the reading of the scientific authorities, he can be cross-examined on that. That is the uniform rule that I have endeavored to follow.

BY MR. SIZER:

Q. I will ask you if you have made search through the

literature to ascertain whether or not you could find any such case there.

A. I have.

Whereupon, at 2 o'clock P. M., Court adjourned until Monday morning, March 27, 1911, at 9 A. M.

CHATTANOOGA, TENNESSEE

MONDAY MORNING, MARCH 27, 1911.

NINE O'CLOCK A. M.

Court met pursuant to adjournment.

Appearances: Same as before.

CLAIMANT'S EVIDENCE CONTINUED.

Mr. Miller: We asked for some data in connection with Doctor Vaughan's testimony and I understood that counsel was to get it.

Mr. Hirsch: I have it now written out in longhand and am only waiting for it to be typewritten to deliver it to you.

DR. RUDOLPH WITTHAUS,

resumed the stand for further examination and testified as follows:

DIRECT EXAMINATION CONTINUED.

BY MR. SIZER:

(The last question and answer of the previous hearing were read to the witness.)

Q. You say you have made search for that kind of cases. Did you find such cases?

A. Cases of what?

Q. Death resulting from the use of caffeine.

A. I did not.

Q. Do you understand the German language?

A. I do.

Q. Have you read the literature,—the report of the Allard and the Zenetz cases in that language?

A. Yes, sir.

Q. Are they cases of death by caffeine? Either one of them?

A. No, sir.

Q. Now, speaking of excessive quantities of caffeine being taken. What would be the nature of the result from that? Would the result be temporary or of a serious nature?

A. Temporary.

Mr. Miller: That question was asked and answered on

Saturday.

Mr. Sizer: I do not recall it, but if it has been asked I do not care to proceed further with it.

Mr. Miller: It was asked and answered on Saturday that it was of a temporary nature.

BY MR. SIZER:

Q. Would the effects of caffeine or any other substance of that kind when administered to animals necessarily afford conclusive evidence of the effect of the same substance when given to human beings?

A. They would not.

Q. Why?

A. Because the effect of different drugs on different animals is different in kind and in character, and you cannot argue from the effects on animals as to the effect on man, except merely as a preliminary indication.

Q. Have you had any personal experience with respect to the use of caffeine in beverages?

A. I have.

Q. State what that experience is.

A. I have taken coffee for over fifty years.

Q. In what quantity?

A. In quantities varying all the way from five to eight grains of caffeine a day.

Q. Five to eight grains?

A. Of caffeine.

Q. In the form of what?

A. In the form of coffee.

Q. Has that taking of caffeine in the form of beverages ever resulted in any impairment to your health or injury to your constitution?

A. Never.

Q. What is your age now?

A. Sixty-four.

Q. Is caffeine taken in the form of beverages a habit-forming substance?

A. Not from my experience. When I don't get it, I don't miss it.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You say you wrote a work on toxicology?

A. Yes, sir; I did.

Q. In that book you undertook to define a poison?

A. I did.

Q. And you also undertook to collate the statistics for a nine-year period as respects to certain poisonous drugs, did you not?

A. It is my recollection that I did.

Q. In that table of statistics you gave a number of poisonous substances?

A. I took those from other authors.

Q. Well, you indorsed them and approved them, of course, or you would not have put them in your book?

A. Yes, sir.

Q. You say you searched the literature also in connection with caffeine?

A. Yes, sir.

Q. In searching that literature did you consult your own book before you came down here to testify?

A. I don't think I did.

Q. You don't think you consulted it?

A. Not in that regard.

Q. Now, I will ask you to refer to pages 56 and 57 of your own book and state if in connection with poisonous drugs, where reported cases of poisoning were shown, you do not show in connection with arsenic and other poisonous substances cases of caffeine poisoning during the nine years.

A. This is a table taken from somebody else. I don't see the authority for it.

Q. Just simply look on page 56 at the pencil mark check there.

A. Yes, sir.

Q. Don't you see caffeine there?

A. Yes, sir.

Q. Don't you see caffeine there?

A. Yes, sir.

Q. Don't you see thirteen cases in nine years?

A. Yes, sir.

Q. Do you see arsenic along in that same connection?

A. Yes, sir.

Q. Now, you say you endorse that collaboration, else you would not have put it in?

A. I did not endorse it. Those are occurrences that date back to 1880. I have no knowledge of them.

Q. If you consulted the literature before you came down here to testify, didn't you consult the literature from which you took that table for medical students before you came down?

A. This book was not written for medical students.

Q. For whom was it written?

A. Lawyers.

Q. A book on toxicology for lawyers?

A. Yes, sir; lawyers and doctors. That is a part of the system of medical jurisprudence intended solely for

the use of physicians and lawyers in the trial of cases.

Q. That is one of the books you testified on Saturday that you wrote—that is, a treatise?

A. Yes, sir. That table was taken from somebody else; whom it was I have forgotten.

Q. It is taken from Kobert?

A. Yes, it is, and so stated, I see.

Q. You considered Kobert a standard authority or you would not have put it in?

A. I don't think Kobert stated that of his own knowledge.

Q. I ask you if you didn't approve that as a standard text, if you would have put it in your book and you said you would not. Do you wish to modify that statement?

A. I don't know,—what?

Q. That you would not have inserted it if you did not approve it.

A. Oh, yes, I would. A great many cases are reported and ascribed to certain substances which are not attributable to that subject. I took this table bodily and Kobert is responsible for it, not I.

Q. That is a volume of the treatise you wrote?

The Court: There is no question about that. He has so stated.

A. It is.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. I want to find the one you wrote and that I understand to be the one. Now, I ask you, in writing that and sending it out to physicians, why it was that you inserted a table of statistics showing caffeine poisoning if you did not believe that table was reliable?

A. None of these are cases of death.

Q. How do you know that?

The Court: Answer the question, Doctor. That was not the question and we will get along faster if you will answer the question.

BY MR. MILLER.

Q. How do you know they are not cases of death?

A. Because I have not found them reported elsewhere.

Q. What?

A. I have not found the particulars of them elsewhere.

Q. And because you have not found them elsewhere you conclude that they are not cases of death?

A. There are no details about them, there is no way of telling what they are.

Q. Now, preceding this table, didn't you use this language:

"Statistics of cases of poisoning can best be but fragmentary and incomplete, as in all cases the great majority of non-fatal, accidental and medicinal poisons escape record entirely"?

A. That is true.

Q. By non-fatal you mean those that do not result in death?

A. Yes, sir, I do.

Q. "While in such records of vital statistics as are officially kept, particularly in the United States, either the nature of the poison is not determined with sufficient accuracy or all cases are classed under the general head of poisoning. Confessedly, such records take notice only of fatal cases."

A. Yes, sir.

Q. By fatal cases you mean death cases?

A. Yes, sir; I do.

The Court: That is perfectly obvious.

BY MR. MILLER:

Q. Then I ask you how you know if immediately following that you gave a record of thirteen cases and you say they have records only of fatal cases—how you can conclude that those thirteen are not death cases?

A. I do not know anything about those cases at all.

Q. Then when you answered counsel that you did not know of any recorded cases of death and had searched the literature, you meant you had not followed down those thirteen cases you saw and that you had put in your book, to see whether they were fatal cases or not?

A. I don't know anything about those cases at all.

Q. The search you made involved those thirteen cases you reported?

A. I didn't report those thirteen cases.

Q. Then the thirteen cases you put in your book?

A. I quoted Kobert's statement.

Q. You didn't follow them down to see whether they were fatal?

A. I searched all the literature I could find and I found no further mention of them.

Q. Now, in defining the effects of a poison you stated: "It may act chemically on the blood or it may be carried by the blood to other parts of the body and there produce chemical action which is necessary and which is the case in true poisons." What do you mean by "true poisons" in that connection?

A. As distinguished from corrosives.

Q. What do you mean by corrosives?

A. I mean substances like the mineral acids and mineral alkalies which destroy tissues with which they come in contact by virtue of their chemical action.

Q. Then substances that destroy the blood or destroy the tissues by virtue of its chemical action you do not call a true poison?

A. I don't say that.

Q. Do you say it now or not?

A. They also have a poisonous action.

Q. I know, but I ask you if you call that a true poison, if that is what you mean when you use the term "true poison" here.

A. Not if brought in direct contact with the tissue. If carried by the blood to the tissue, they are true poisons.

Q. Caffeine is carried by the blood to the tissues and brought directly in contact with them?

A. That is a contradiction in terms.

Q. Is it or not?

A. Your question is a contradiction in terms. If it is brought directly in contact with the tissues, they are not carried there by the blood.

Q. Is it not first taken in the stomach and then by the blood drawn in contact with the tissues, brain and muscles?

A. True poisons are.

Q. Is not caffeine?

A. Yes, sir; I presume so.

Q. Then to that extent it is like a true poison, of course?

A. Oh, not necessarily. It must be harmful to be a poison at all.

Q. Now, in order to tell us of the effects of caffeine on the human system, you of necessity were required to study pharmacology?

A. What do you mean by pharmacology?

Q. I mean the science which deals with medicines and their effects on animals.

A. That is not pharmacology. This is pharma-dynamics.

Q. Did you study it or not?

A. I studied it with a prolonged experiment on myself.

Q. How?

A. Taking it every day.

Q. That is coffee?

A. Yes, sir.

Q. I notice there is a co-collaborator on this work of yours, one Dr. W. M. Bullard of Boston.

A. He is not a collaborator on that volume.

Q. It is marked so.

A. There are four volumes.

Q. The volume you wrote, he is marked as one of the associates.

A. I wrote everything between those covers myself.

Q. Do you know Doctor Bullard?

A. I never saw him.

Q. He was one of the gentlemen who assisted you and your associate, Doctor Becker, in preparing these four volumes of this work?

A. No, sir; in preparing the article on electricity.

Q. In preparing articles?

A. In preparing an article on electricity.

Q. In the article by Doctor Bullard, dealing with coffee and tea poisoning, which were referred to the other day in your presence, I will ask you if you ever had any occasion to study those articles since they were presented to Doctor Wesener the other day.

A. I have not.

Q. You were not in Doctor Wesener's room yesterday when they were submitted to him for consideration?

A. No, sir.

Q. Have you ever seen those articles?

A. I don't remember.

Q. When you stated there were not any recorded cases as far as you knew of death due to caffeine poisoning, you did not mean to be understood as stating that there were not a great many cases of poisoning from which people recovered?

A. There were no cases of serious poisoning.

Q. Did that mean that you had examined the article written by Doctor Bullard?

A. I did not — I do not recall whether I did or not, but I examined a great many and may have examined those among others.

Q. Would you, after you are excused from the stand, examine those articles and then state whether or not you had ever seen them before?

A. Yes, sir.

Q. If you have, and then are prepared to say whether or not from a reading of them they are due to caffeine that was in the tea and coffee, I would like to have you recalled to the stand and let you make an explanation about it.

A. Very good.

Q. Now, you have read a treatise by Doctor Hare, with whom you have been associated for several days over here, haven't you, as respects caffeine?

A. I do not recall that I have.
Q. You are a registered practitioner of medicine?
A. I am, but I have never practiced.
Q. At any rate, you know Doctor Hare's work to be a reputable treatise?
A. Yes, sir.
Q. And for you to determine as to the toxic effects of a drug, what is necessary for you to study?
A. Works on toxicology.
Q. Anything else?
A. I hardly think so.
Q. You merely, when you write books on toxicology, study the previous writers on that subject and make no experiments of your own?
A. I have made experiments—many.
Q. Did you make any experiments with caffeine?
A. I have not.
Q. Did you ever make any with Coca Cola?
A. I have not.
Q. Are you prepared to say whether the treatise by Doctor Hare is a reputable and standard authority or not?
A. I do not admit any authorities in matters of science. They are very reputable writers, but they have not the force of authority.
Q. Are you prepared to say that this work by Doctor Hare is a standard treatise?
A. Yes, sir.
Q. Now, as respects the physiological action of caffeine, I read this from Doctor Hare—

The Court: Has he made any statement on direct examination about that?

Mr. Miller: He has undertaken to tell what the effect was on the human system and he said it was based on reading of literature, in part.

BY MR. MILLER:

Q. (Reading)

"Physiological action. Nervous system.—On the nervous system caffeine acts as a rapidly acting stimulant, exerting its chief influence on the brain and the spinal cord."

Q. Do you agree to that or not?
A. I do.
Q. (Reading)

"By its cerebral effect it causes increased rapidity of thought, by its influence on the spinal cord it increases the reflex activity, and for this reason it is said to make people nervous."

Do you agree to that?

A. I have heard that statement made many times, but I have never had that experience.

Q. Then speaking from your personal experience you do not agree to that, but speaking from the reading of literature you do agree to it?

A. I agree to it by experience all except the nervousness. I do not agree to that.

Q. But all except what?

A. The nervousness.

Q. And where you disagree, that is based on your personal experience?

A. Yes, sir.

Q. (Reading)

"It is important to remember that it has no effect on brain protoplasm except to stimulate it, and that ultimately a brain driven along by caffeine breaks down by the concentration of its energy for the time being in one effort."

A. I have not experienced that.

Q. You have not become insane as the result of drinking it?

A. No, sir.

Q. If your brain should be broken down, driven along by caffeine by the concentration of its energy for the time being, you would be insane or reason would be dethroned, that is what is meant by the breaking down in one effort?

A. I suppose if the thing happened, it happened.

Q. Now, as to the circulation: (Reading)

"Caffeine has been supposed to increase the pulse-rate and blood-pressure by stimulating the heart-muscle, but from recent studies in the United States and abroad it would seem probable that these changes are indirectly produced and due chiefly to its stimulating action on the nervous system."

Do you agree to that statement or not?

A. I do not.

Q. (Reading)

"Clinically, it certainly seems to raise the blood-pressure in almost every instance where it is used."

A. I do not know.

Q. You do not know how that is?

A. No, sir.

Q. Now, speaking of the untoward results of caffeine on the human system: (Reading)

"Caffeine often produces so much insomnia when given in cases of cardiac diseases"—

that is, heart disease—

"that its use has to be discontinued. If its use is persisted in it may produce a condition of delirium closely resembling that of alcoholism; and if too large doses are used, or it is too frequently repeated, it may cause a decrease in urinary flow by causing spasm of the renal vessels."

A. That may be true.

Q. (Reading)

"The writer has also seen a marked rise of temperature follow its use in the doses of 2 grains (0.12) three times a day, but this is unusual."

A. I presume Doctor Hare is truthful in his statements.

Q. (Reading)

"In certain persons the habitual use of coffee may cause insomnia, tremors, palpitation, tinnitus aurium, gastralgia, and emaciation."

A. I have seen that statement.

Q. You found that in the literature?

A. Yes, sir.

Q. Now, in speaking of coffee in that connection and caffeine in that connection, you understand, of course, that it is the caffeine content of the coffee to which Doctor Hare is referring?

A. Undoubtedly.

Q. When you stated that caffeine in large quantities given to a person who was afflicted with an idiosyncrasy against it, it might produce certain deleterious results, what did you mean by "idiosyncrasy against it"?

A. Intolerance. Some people are intolerant of a great many articles of food. An individual peculiarity of that person.

Q. A great many people are more tolerant of various kinds of drugs than others?

A. Yes, sir.

Q. Of course, when a medical writer like Doctor Hare or yourself is speaking of the effects of a drug or the administration of a drug as there in the case of two grains of caffeine by Doctor Hare, you mean an adult unless there is a limitation put on it, unless it refers to a child or a growing person, do you not?

A. Yes, sir.

Q. And when you stated that the results of the administration of caffeine would not be of a permanent, but only of a temporary nature, how do you know without having read the thirteen cases that you put in your book to see what the effects were, Doctor?

A. I have read reports of quite a number of cases, pos-

sibly I have not read the reports of some of those; there is no indication there to tell what those cases were.

Q. Well, your search, you will admit, was not very thorough, or you would have read the thirteen cases in your own book?

A. No, there was no source there to tell you where to look. This table, you see, I took from Kobert.

Q. Well, this table you took from Kobert, and you gave the page of the book?

A. Yes, sir.

Q. Well, if you did want to read about them, Kobert, that is in literature, as I understand, why did you not read Kobert?

A. Well, I read Kobert, you understand, that is all he said about it.

Q. Now, then, from your reading of Kobert, I ask you what was the result of these thirteen cases?

A. I don't know.

Q. Then, if you do not know, how can you state the results were only temporary?

A. Because in all other cases there were only temporary, all cases I could find in my extended research, of any report, beyond merely a numerical expression, were temporary.

Q. And that is the best explanation you can make of what you mean by the word "temporary" in that connection?

A. I think it is a good one.

Q. Now, when caffeine is taken into the system, it is broken up into three ingredients, or substances, known as paraxanthine, theophyllin and theobromine?

A. It is demethylated usually.

Q. And that is into these three substances?

A. I don't know, no.

Q. Do you know how that is?

A. It is reduced to one of the demethyl xanthines, but which one I don't know, and I don't think anyone else knows.

Q. Then you are not prepared to say how that is?

A. No, sir.

Q. Do you or not regard paraxanthine as poisonous?

A. Yes, sir, moderately.

Q. And you know that theophyllin, or its synthetic reproduction, theocin, is poisonous?

A. Yes, sir.

Q. And that was what was reported to have killed the patients in the Allard cases?

A. Yes, sir; a synthetic product.

Q. Then you are not prepared to say that its physiological effect would be at all different from that of theophyllin?

A. No, sir; I am not.

Q. Now, if it be true that xanthine, I mean that caffeine taken into the system is broken up or dimethylated, as you stated—

A. (Interrupting) Demethylated—not dimethylated.

Q. Well, in one or more of these three groups—

A. It is demethylated and not dimethylated.

Q. Well, I mean demethylated.

A. Yes, sir.

Q. And broken up into one or two or three groups?

A. Yes, sir.

Q. And one of the groups is poison, paraxanthine, and another one of the groups killed patients in the Allard cases, how is it that you can say that caffeine is not a poison, when it produced at least two of these two groups that kill people?

A. I don't admit it.

Q. Those two groups of caffeine—

A. (Interrupting.) I don't admit that theocin killed these people.

Q. You don't admit it?

A. No, sir.

Q. But they are officially reported as being cases of theocin poisoning?

A. They are so reported, yes.

Q. But you were not there and didn't see them, and therefore do not admit it?

A. I don't admit it because of the condition of the patients; there were other causes of death there besides theocin.

Q. Well, there is always a possibility that a man dies from something else, although you administer arsenic to him?

A. Sometimes.

Q. Now, reading from this one of these Allard cases: (Reading.)

> "Our observations show most clearly how unwarranted it is to apply the results of toxicological tests of drugs on animals without qualification to human beings."

A. I so stated myself.

Q. The lethal quantity of theocin per pound to be in animals, as a rule, from five-tenths of a gram, which in amount would correspond to the total dose—

The Court: (Interrupting.) What are you reading

from, Mr. Miller?

Mr. Miller: From one of these cases.

The Court: That is not with reference to the fact of the case, but just a general statement.

Mr. Miller: That is a case that was put in evidence.

The Court: That is a general expression. You may read it so far as it relates to the facts of the case, but the general expression, just eliminate that.

Mr. Miller: I asked this witness to take this case, or reported case—

Mr. Sizer: What cases are those?

Mr. Miller: The Allard case on theocin poisoning by Edward Allard, Assistant Physician of Clinics, and ask him to point out from that Allard case what it is therein that distinguishes that case from what it was reported to be, namely, one of theocin poisoning.

The Court: Well, just hand the book to him.

Mr. Miller: I have the translation.

Mr. Hirsch: I have the German text.

Mr. Miller: Let him have that, and I will keep the English.

The Witness: The patients were both in an advanced condition of disease. It was given as a diuretic. The patients were suffering from edema. They might as well have died from edema as from theocin, or the causes of the edema.

Q. You stated edema would have caused hemorrhages in the stomach which were found in that case there, which is reported in that case?

A. I am not a pathologist.

Q. Then you are not prepared very well to pass on that case if you are not prepared to deal with those conditions, are you, Doctor?

A. Cases of advanced disease like that are not usually accepted by toxicologists as proof of causes of death by poison alone.

Q. Well, my question was, if there was anything in that case that warranted you in making the broad statement to adverse counsel that theocin was not responsible for the death?

A. I didn't say that; I stated that I didn't accept it as the cause in that case.

Q. You just merely mean to say you do not accept that as an authority in this case as respects caffeine?

A. I did not accept it as sufficient proof.

Q. You state also that you are not a medical man?

A. Well, I am a graduate in medicine.

Q. But I understood you to say you would not attempt

to deal with the medical phases of that case, and hence you would not answer me as to whether or not edema might cause those results?

A. I don't know what edema might do.

Q. When you first began taking caffeine you didn't take five to eight grains per day?

A. That has been so far back that I don't remember.

Q. Then you don't remember what you took?

A. I know what I am taking now.

Q. Well, you don't know whether you have built up a tolerance for it in the proportion you take it, or not?

A. I don't know; I can't tell whether I have or not.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Doctor, these were cases reported by Doctor Kobert which you included in your work on toxicology; do they state or show that they were cases of deaths resulting from caffeine?

A. No, sir.

Q. Do they, in any case, show the amount of caffeine that was taken?

A. No, sir.

Q. Do they, in any case, show the nature of the result that followed?

A. No, sir.

Q. You say personally that you do not know anything about the facts of these two cases?

A. No, sir.

Q. You were asked also about Doctor Hare's work and read some quotations from it. Does that work of Doctor Hare's treat of the effects of caffeine as a medicine?

A. Yes, sir.

Q. And when taken by sick persons?

A. Yes, sir.

Q. Does the effect of caffeine or any other substance on a sick person necessarily show what its effect would be on a well person?

A. No.

Mr. Miller: Now, I object to that; he declined to answer me on the grounds that he was not sufficiently versed in medicine to do that.

The Court: Well, I think the exception is well taken.

Mr. Sizer: Even though he is not a practitioner of medicine, he might be able to say whether the effects of a substance on a well person would be the same as on a sick person.

The Court: I think if he declined to answer as to the

effects of the disease—I will not allow it.

BY MR. SIZER:

Q. You say, Doctor, that the effects of different toxic substances may be different on different people. Is it or not true also that the effect of a substance on different people may differ?

A. Yes, sir.

Q. Do you know whether caffeine, in its passage through the body, is ever broken down or reduced into theocin?

A. No, sir; I don't know—not in theocin, no.

The Court: It is not disputed that is an artificial compound—nobody claims it is in that form,—

BY MR SIZER:

Q. (Interrupting.) I will ask you further, assuming that theocin—that caffeine could be broken down into theocin or any other smaller or less methylated substance, would the effect of that substance, when it is derived from the breaking up of caffeine in the body, be the same on the body—be the same as if it were taken into the mouth as such?

A. No.

Q. Now, why is that, Doctor? Explain.

A. Because it is produced in small quantities and gradually added to the circulation. If it is taken by mouth it enters the circulation very rapidly.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. About these cases that you reported. Do I understand in your last examination that you did or did not read those thirteen cases?

A. I don't know whether I did or not; I don't know whether those are included among the cases or not that I read.

Mr. Miller: I desire to introduce into evidence this page of the book dealing with poisoning, including that list of cases, to put it in evidence without taking the time to read it, as Exhibit "C" to his deposition.

The Court: That may be done. You mean the cases referred to under the head of caffeine poisoning in his book?

Mr. Miller: That is it.

Mr. Sizer: That will be all right.

(Witness excused.)

Exhibit "C" to the testimony of R. A. Witthaus.

STATISTICS OF POISONING.

Statistics of cases of poisoning can at best be but fragmentary and incomplete, as in all countries the great majority of non-fatal, accidental and medicinal poisonings escape record entirely, while in such records of vital statistics as are officially kept, particularly in the United States, either the nature of the poison is not determined with sufficient accuracy, or all cases are classed under the general head of poisoning. Confessedly such records take notice only of fatal cases. The legal reports refer only to the very small fraction of cases in which conviction of criminal poisoning is followed by appeal.

	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1880-1889
Poisonous foods	16	12	15	15	27	11	26	32	25	21	200
Bromin & Compounds	4	2	2	2	3	2	1	3	1	4	24
Potassium iodid	4	1	2	1	3	4	7	4	2	3	31
Cantharidin	4	4	3	--	2	1	1	2	1	1	19
Rhus Toxicodendron	--	2	2	4	--	2	4	5	1	3	23
Iodoform	2	2	20	11	5	4	11	9	2	10	76
Phenol	25	28	17	24	20	13	16	15	11	10	179
Lead	21	23	26	32	27	36	20	31	27	30	273
Mercury	6	3	9	6	38	28	14	17	21	23	165
Arsenic	32	19	16	17	25	11	12	18	15	26	191
Tobacco	1	1	--	4	9	5	2	4	5	3	34
Santonin	2	--	3	--	3	--	1	2	2	3	16
Soda and Salicylic acid	1	--	2	3	5	2	4	2	2	2	23
Quinin, etc.	3	2	--	1	8	4	--	2	8	6	34
Caffeine	--	--	--	2	1	2	3	--	1	4	13
Camphor	1	2	1	3	1	4	1	3	1	1	18
Cannabis indica	1	--	--	3	7	4	3	4	--	--	22
Hyosin, etc.	1	--	2	2	5	1	1	1	1	6	20
Straminium	3	5	4	6	--	4	3	1	4	1	31
Aconitin	9	2	12	7	4	5	3	5	5	3	55
Atropin	8	23	12	12	16	17	14	11	10	8	131
Strychnine	17	15	9	13	19	9	6	7	7	14	116
Chloral hydrate	9	2	5	7	8	2	1	5	2	1	42
Alcohol	10	3	4	17	3	9	9	16	18	26	115
Cocain	--	--	--	--	5	11	24	23	28	23	114
Opium	12	22	21	17	14	17	13	9	11	12	148
Morphine	11	11	21	27	27	18	17	25	10	17	184

H. C. WOOD, JR.,

the next witness called on behalf of the Claimant and Intervenor, the Coca Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. SIZER:

Q. Where do you live and what is your occupation?

A. I live in Philadelphia and am Professor of Pharmacology and Therapeutics in the Medical Chirurgical College of Philadelphia.

Q. Will you please state your education, qualification and experience as a pharmacologist?

A. I graduated in the University of Pennsylvania in medicine and studied in Europe under Professor Kronecker at the University of Berlin. I studied in Paris under Professor Richet, and in Turin under Professor Mosso. After my studies in Europe, I was appointed teacher of Pharma-dynamics in the University of Pennsylvania, with which institution I was connected continually until my election as a Professor in the Medical Chirurgical College. I have written a number of articles on pharmacological subjects. I am one of the editors of the United States Dispensatory. I am second vice-president of the Committee of Revision of the United States Pharmacopœia, and have revised the last three editions of the text book on therapeutics originally written by my father.

Q. Have you made any experiments to determine the exact effect of caffeine on the muscles, and if so, what were those experiments?

A. I made a series of experiments on the effects of caffeine upon the muscles of a frog, which animal is usually employed for studying the action of caffeine upon the muscles. These experiments were made by dissecting out two muscles from the hind legs of the frog, one muscle being poisoned by caffeine and the other not. The muscles were attached to a lever which was weighed—

The Court: I excluded the experiments of the Government along that line after the direct action of caffeine on the muscle—

The Witness: Well, your Honor, I would like to say—

The Court: (Interrupting.) Just a moment—I will exclude this, or, if I admit it for one side, I will allow the Government to prove their experiments.

Mr. Miller: I have no objection to it being admitted.

The Court: I prefer to exclude it on both sides, as I think it is so remote to the question of caffeine taken through the mouth in food.

The Witness: There were some other experiments I made.

Mr. Sizer: The Judge excludes these—we will get to the others.

BY MR. SIZER:

Q. Have you made any other experiments besides those by direct application to the muscle?

A. Yes, sir; I made experiments by hypodermically in-

jecting caffeine into frogs.

Q. And by "hypodermically" you mean directly into the blood system or into the lymph sac?

A. Into the lymph sac.

Q. Well, just state about those.

A. The experiments were performed by tying one leg so that the caffeine could not reach the muscle on that side, and then the caffeine was injected, and after waiting a sufficient time for the action of the caffeine to show itself, those two muscles were taken and the two muscles were dissected out with their attached nerves and attached to a muscle lever and the electric current applied to the nerves at intervals of every second, and the results of the contraction reported on a moving drum.

Q. Now, what was the result that you reached?

A. Well, the muscle which had received the caffeine, in that muscle the contractions were larger and more noticeable than in the normal muscle.

Q. What conclusion did you draw from that?

A. I came to the conclusion that caffeine increased the working capacity of the muscle with a normal expenditure of energy, with probably a less expenditure of energy, because when the experiment was continued over a long period of time and the muscles became exhausted, I found the total amount of work that the muscle was capable of accomplishing was greater under caffeine than under normal conditions. I have here a chart which shows the average result—of the ten experiments of this kind. Can you see it if I hold it up? This chart—the red line represents the caffeine and the green line represents the contraction by the normal muscle. You see at the beginning of the experiment the affeine muscle reached to a higher point than the normal point. That was continued for a long period of time until it became exhausted, the two muscles became exhausted at the same time and because the caffeine has done much more work—taking the total amount of work accomplished by the caffeine muscle being increased, therefore the muscle must have done this work more economically, because, as I may say, under the conditions of these experiments, the muscle being separated from the body received no nutrition, and therefore they worked on stored energy and the stored energy in the two muscles must be the same, and therefore the caffeine muscle accomplished greater work with the same amount of energy.

Q. Have you performed any experiments on that same line, Doctor Wood, on yourself?

A. On myself?

Q. Yes.

A. To ascertain the action of a drug on the muscle?

Q. Well, no, but to determine the nature of the stimulation of caffeine?

A. Not on the muscular system, but on the circulatory.

Q. State what that experiment was.

A. Well, I performed a number of experiments on different individuals concerning the action of the drug on the circulatory system, myself included among them. I found that under the influence of caffeine, there was a slowing of the heart with generally no great alteration in the blood pressure, that is in the force of the circulation, but in one person who never used any form of a caffeine beverage, I found an increase in the blood pressure, that is in the increase of force of circulation with a slowing of the pulse.

Q. What would that indicate, Doctor?

A. That would indicate that the muscles were working more economically, because the slower the heart works, the more advantageous the work. It can accomplish the same amount of work with less expenditure of energy by contracting slowly than by contracting rapidly, and the effect of the blood pressure was not lowered, so there was no weakening of the heart's force.

Q. It showed the force was the same with less expenditure of energy?

A. Yes, sir.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Doctor, is this work, entitled Therapeutics and Its Principles and Practice, (Wood.) fourth edition of the book, that you referred to as having had some connection with in revising?

A. Yes, sir.

Q. That is Horation C. Wood, Junior, M. D.?

A. Yes, sir.

Q. And in that you state this:

"The question seems established that in frogs caffeine acts as a motor spinal stimulation, but also as a muscle poison."

A. Yes, sir, but the word "poison" is used in a technical sense there.

Q. Well, what is the difference?

A. When applied to pharmacology, any drug that has an effect on the system is a poison — that is not using the word in the ordinary meaning.

Q. Did you also state on another page, namely, that on

page 216, speaking of caffeine and its summary:

"It is a powerful muscle poison, at first producing a condition in which there is exaggerated excitability with a tendency to tetanic contractions upon momentary stimulation and afterwards a stage of stiffness, weakness, and finally lost excitability."

A. I would like to remark, Mr. Miller, that that statement was based upon experiments which were made some fifteen or eighteen years ago, and as a result of my own experiments and more recent investigation, I am inclined to retract that statement.

Q. Then you are not going to say your book was wrong?

A. I certainly am.

Q. This book was published in 1908, when did you change your opinion about this, when you were getting ready to try this case or appear in this case as a witness, or how long since 1908?

A. Well, if you had read the book carefully, you would have seen that statement is contradicted within the text book itself.

Q. And you mean to say you wrote a book that contradicts itself and sent it out to the medical profession?

A. In revising a book, it is often very easy to overlook statements which are contradictory —

Q. You think that you overlooked some of those statements when you were preparing this book?

A. I have no doubt I did.

Q. And that is the explanation you make of how you came to use this language?

A. Yes, sir.

Q. Now, in speaking of the diuretic action of this drug, which is its action on the kidneys, I find this statement.

"In poisoning by caffeine, great increase in the secretion of the urine is a common symptom, and the statement of Cubler that the alkaloid is one of our most powerful and certain diuretics, has received abundant confirmation."

You agree with that?

A. Yes, sir; I do.

Q. "The effect of the drug upon a healthy man would indicate that it does not act simply by regulating the circulation of the kidney, but has also a distinct effect on the renal organ itself."

A. By renal organ, you mean the kidney itself, and the blood vessels, —

Q. (Interrupting.) I said:

"The effect is not only on regulating the flow of the urine, but it acts directly on the organ itself."

That is what you mean by that statement —

A. I didn't catch the question.

Q. I say you mean by that statement that the administration of caffeine does not only regulate or help to regulate the flow of the urine but it has a direct effect upon the kidney itself, the organ or the blood vessel as you expressed it, the renal organ?

A. Well, your question makes no sense, Mr. Miller.

Q. I thank you, sir. Your answer is perhaps open to the same criticism. The effects of the drug upon a healthy man would indicate that it does not act simply by regulating the circulation of the kidney, but has also a distinct effect upon the renal organ itself. Now, what is that distinct effect upon the renal organ you referred to?

A. That is a matter of some dispute among pharmacologists at this time.

Q. Well, what did you mean by that?

A. That is has an effect upon the epithelium of the kidney.

Q. Well, you state it was not a limited but it had a direct effect on the kidney; what did you mean by that?

A. Well, it — I said an effect on the epithelium of the kidney —

Q. What is that effect, the direct effect?

A. In the sense it is used there, it is to stimulate that epithelium to greater activity so that a larger quantity of urine is secreted.

Q. And do you mean to say that is good for a healthy man?

A. Well, I think it is a matter of neither good or bad in a healthy man, it makes very little difference.

Q. And you mean to say that the normal condition of a healthy man, you mean changing the normal condition of a healthy man so as to increase the flow of urine is neither good or bad?

A. If I take it — if I took a large quantity of water I would increase the flow of urine, but it don't injure my system any.

Q. But if you take a drug, and if you do not take the beverage that nature has furnished us, would it be a good or a bad thing.

A. I would say that a drug that is not taken in excessive quantity has but very little influence on the system, so far as general health is concerned.

Q. I find this statement on page 214 of your book:

> "In the advanced stages of caffeine poisoning, the heart and the vaso-motor system are without doubt depressed so that the fall of pressure is duplex."

That is double. Do you agree to that statement?

A. Yes, sir.

Q. I find a further statement:

"Experimental evidence, although it is not conclusive, does not point towards any marked effect of the drug upon metabolism."

Do you agree to that statement or not?

A. Yes, sir.

Q. How was this caffeine, I mean what was the substance that you administered to the frogs, was that caffeine or caffeine citrate or what?

A. Caffeine.

Q. How did you prove that?

A. I obtained caffeine from one of the largest wholesale dealers in Philadelphia, guaranteed under the Pure Food & Drugs Act.

Q. Guaranteed under that, or merely a mark by the manufacturer's serial number, that didn't mean the drug laboratory of the United States guaranteed it.

A. That meant the manufacturer guaranteed it.

The Court: You need not answer that.

BY MR. MILLER:

Q. It meant the manufacturer guaranteed it was so and so?

A. Yes, sir.

Q. And you made no test to ascertain whether it was caffeine or not?

A. No test to absolutely prove it.

Q. Now, when you injected it into the lymph sac of the frog, after that time, you extracted, as I understand, after a certain length of time, the muscles of the frog?

A. Yes, sir.

Q. How long after you put it into the lymph sac?

A. Generally about half an hour.

Q. And you thought that the effect of caffeine would be found on the muscles of the animal within thirty minutes if it was injected into the lymph sac?

A. Why, I proved it.

Q. You proved that by showing that one of these muscles was much more active than the other?

A. Yes, sir.

Q. What would have been the difference in effect between the taking of it into the lymph sac the way you did and applying it directly to the muscle?

A. I don't think there would be any.

Q. That is your opinion?

A. That is, of course, provided that the doses were

equivalent.

Q. Did you consider that leg — that you found a normal leg, that is the one you tied off?

A. For the purposes of experiment, it was.

Q. You cut off the circulation absolutely from that leg?

A. Yes, sir.

Q. And so that the caffeine which you had injected into the frog into the lymph sac could not get into the circulation and get into that leg at all?

A. Yes, sir.

Q. And then you took the other leg, that you knew it could all go into, and therefore you considered that a fair experiment?

A. I certainly did.

Q. You took one leg and cut off the circulation entirely, shut off the blood, and then you also let the circulation get into the other leg, and let all the caffeine go there?

A. That type of experiment has been used from time immemorial, and all the scientific world agrees it is a fair experiment.

Q. You say that is a fair experiment?

A. Yes, sir.

Q. Well, you are also the gentleman whose name appears on this United States Dispensatory that you referred to in chief?

A. Not on the back. My name appears on the title page.

Q. And in compiling that, I find the word "coca" and I find this definition:

The Court: (Interrupting.) That has already been read.

Mr. Miller: I don't think I have read it.

Mr. Sizer: That was offered in evidence by Doctor Fuller, I think.

Mr. Miller: We put in the National Dispensatory, this is the United States Dispensatory and we proved by that witness he compiled it — they proved that.

The Court: That is not the point of my examination — if it is already in, you need not go over it again.

Mr. Hirsch: There are two dispensatories, and one is in and one is not.

Mr. Miller: I don't think this one has been put in.

The Court: All right, go ahead.

BY MR. MILLER:

Q. The definition given here of coca is:

"Dried leaves of Erythroxylon Coca." Is that right?

A. That is the name from the United States Pharmacopœia.

Q. You approved it or you would not have put it in here?

A. No, sir; the United States Pharmacopœia is copied verbatim throughout that book without any approval or disapproval.

Q. Then you didn't have much to do except to copy the United States Pharmacopœia?

A. That book is a commentary on the United States Pharmacopœia, it copies what the United States Pharmacopœia says and then expresses comments on the Pharmacopœia.

Q. Now, in this book do you state that it is taken from the United States Pharmacopœia:

> "Huanaco Coca has been for a long time believed to be obtained from Erythroxylon Coca. This belief is confirmed by Rusby."

By that, you refer to Professor Rusby, who has been examined here?

A. I presume so.

Q. You didn't get that from the United States Pharmacopœia?

A. No, sir, I did not write that whole book. That book is edited by three editors, one of whom is responsible for the chemistry, and one of whom is responsible for the pharmacy, and one of whom is responsible for the therapeutics. I am in no way responsible for the pharmacy or the chemistry of the book.

Q. Well, this is the botanical portion of it. If you were not responsible for the other two, are you responsible for that part?

A. My father wrote that part.

Q. What did you have to do with this book that you put in evidence, if somebody else did everything about it — what did you do?

A. I assisted in reading the proof and in correcting any statement which I found in there which I did not think was correct.

Q. If you were proof reader and corrected any statement that you did not think was correct, then you thought this was correct or you would have offered a suggestion about it?

A. Yes, sir.

The Court: What is the bearing of that statement — I don't see it.

Mr. Miller: It is to show what coca is, assigned to be and what is the popularly accepted definition of coca.

The Court: I understand the first part of it, but about the different brands, the different varieties of coca?

Mr. Miller: I understood your Honor to rule the other day that one witness had a right to express his opinion as to the attainment of another, and I was trying to show that the compilers of this book, including this gentleman, had expressed a high opinion of Professor Rusby, because they had quoted from him.

The Court: You may ask one person whether another expert is a competent authority, but I don't care to go into the question of whether they are eminent or not, those degrees.

Mr. Sizer: And I further object —

The Court (Interrupting): I do not exclude the definition of coca read, but about Doctor Rusby, I do.

Mr. Sizer: So far as the definition of coca, the witness says that is copied from the United States Pharmacopœia, which is already in evidence.

The Court: I will allow it to stay in.

Mr. Miller: My idea, to get it on record is this: if he read the proof of this work and they were quoted from another author that is the highest commendation he could give the other author, and then I might argue inferentially —

The Court: That is too irrelevant and too long a roundabout way. If you want to ask him directly if Rusby is qualified, you can do so.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you familiar with the appearance of pure caffeine?

A. Yes, sir.

Q. This substance that you used in the experiments which you purchased in the market, did it look like caffeine?

Q. Did you have any reason to suspect it was not?

A. No, sir.

Q. This statement that Mr. Miller quoted to you with respect to the muscle poisoning effect of caffeine, was that based on experiments made by the direct application of caffeine to the muscle?

A. I would not like to answer that question positively because it has been some years since I read that literature, but I am inclined to believe it was.

Q. Can you recall how long ago it was since you made those experiments?

A. If you mean made my own experiments—they were based on the literature.

Q. Do you know what quantity of caffeine it was that

was used in making the experiments on which that statement is based?

A. As I said before, I cannot state positively because it has been so long since I have read that article that I have forgotten the quantity.

Q. So that statement was based on experiments made by others that you didn't know anything about?

A. Yes, sir.

Mr. Miller: I object to that.

The Court: That was matter in chief that you introduced on cross-examination.

Mr. Miller: I don't object to the substance but to the form.

The Court: He has a right to cross-examine on matters that you introduced as matters in chief. On direct examination the witness was not asked about that at all.

Mr. Miller: He was asked if he wrote that book.

The Court: He was not asked about whether caffeine acted as a poison on the muscles or not. That was brought out as original matter—on your part in cross-examination, and they have a right to cross-examine on that matter.

BY MR. SIZER:

Q. Since you wrote that book, you have made experiments that lead you to form a different conclusion?

A. Yes, sir.

Q. Is it not since that book was written — is it not a fact that you have made experiments which have led you to different conclusions than the one expressed in the book?

A. There is no doubt, both from my own experiment and reading of the literature, that the action of caffeine in small and large doses is essentially different upon the muscles.

The Court: The ordinary rule in the Federal Court is that where the witness is examined on one subject in chief, the other side cannot examine him on any matters except what he was asked about in chief. That rule has not been enforced in this case as to either side. Either side has been allowed to cross-examine about matters that were not asked about in chief, but in allowing that to be done, I think when the cross-examiner goes into new matter, that then the witness becomes his witness and the side introducing him has the right to cross-examine on that new matter. That is the way I am ruling, and I shall adhere to that ruling.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. The experiments on which you base your change of

opinion were given in evidence by you in your examination in chief, were they not?

A. I have not altogether changed my opinion. It is the opinion I have held for many years, but the opinion you take out of the book is taken by separating a sentence from the context.

Q. We will see if that is so.

A. I have always said that caffeine in small doses was a stimulant to the muscles.

Q. I read you from the summary that you compiled there, and do you find anything that disputes the statement that it is a powerful muscular poison?

A. This summary is supposed to be read in connection with the text of the book.

Q. But the summary is the result of your conclusions from the text?

A. I think the whole article on the subject of caffeine is a part of the text.

Q. What is the reason for writing a summary if you thought the whole article was to be taken into consideration and putting it in that black type?

A. For the student when he wanted to refresh his mind, having read the article previously, that would be recalled to him.

Q. You did not intend to create any false impression by putting that summary there in bold black type as distinguished from the remainder of the text?

A. If the student had read the text book, he would have seen the statements to which that summary refers, and he would have remembered that it said in the text of the book that caffeine in small doses is a stimulant to the muscle.

Q. That is what you say there, that is first acts as a stimulant and then finally becomes a depressant — that is exactly what you say in the summary.

A. I do not catch that.

Q. I say, the conclusion that you draw in the summary is, that first caffeine acts as a stimulant and finally as a depressant?

A. If given in large enough doses, it would act as a depressant.

Q. You don't say that in the summary?

A. I say it in the text of the book.

(Witness excused.)

H. L. HOLLINGWORTH,

the next witness called on behalf of the Claimant and Intervenor, The Coca Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?

A. Harry L. Hollingworth.

Q. What is your present position?

A. Director and experimenter in psychology in Columbia University; also director of psychology in Barnard College.

Q. How long have you been engaged in that capacity?

A. The last two years.

Q. Where were you educated?

A. I took my A.B. degree at the University of Nebraska and served there two and a half years as assistant in psychology and then came to Columbia University as assistant in psychology in charge of advanced laboratory work, and took my degree of Ph. D. and was appointed to my present position.

Q. Have you made any experiments to determine the effect of caffeine on the mental and motor processes, and if so, will you describe the experiments?

A. The object of my experiment was to determine the effect of caffeine alkaloid in the first place, and in the second place Coca Cola syrup with and without caffeine on the mental and motor processes. I had in these experiments sixteen people under my observation for thirty-five days. These people were working on full time and I performed experiments with them. During the first four weeks they came to me five times a day and I put them through mental and motor tests which occupied one hour each day, kept them one hour at each time so that I worked with them five hours each day. During the next part of the experiment, which occupied three days, the subjects or patients—I call them subjects — came to me and worked for ten successive hours on each of those three days, going through these mental tests continuously. In the following week they came to me and took instead of caffeine, Coca Cola syrup with and without caffeine. These people throughout the experiment went without any caffeine-containing drink. They abstained absolutely from the use of coffee, tea, chocolate and cocoa as well as from the use of nicotine and all alcoholic drinks, and all soda fountain drinks, specifically Coca Cola. They further observed regular hours of eating and sleeping, and during the three days during which I practiced the second part of the experiment, they all ate at the same table, eating absolutely the same things for the three days.

Q. Describe your squad and state how you gave them the doses with and without caffeine.

A. In the first experiment, lasting four weeks, I had four squads. I used these four squads—perhaps I had better first say how I gave the doses. I used pure caffeine, alkaloid, administered in capsule form of doses from one to six grains, given in a single dose, but as psyschological experimentation is beset with many difficulties which have to be guarded against, I did this: One of the difficulties is that if the individual knows what he is taking, whisky or caffeine or what not, the excitement of taking is likely to have an effect. These people were told some days that they would have sugar of milk and some days caffeine and they didn't really know what they were taking.

One squad went through two weeks taking nothing but sugar of milk although they didn't know what they were taking.

Another squad went through four weeks taking sugar of milk three days and then caffeine three days and then sugar of milk three days and then caffeine three days and so on.

Another squad ran through a month taking caffeine with their lunch at one o'clock, and a fourth squad taking caffeine in the middle of the afternoon on an empty stomach about two and a half hours after the meal.

I had three controls. The first week I ran everybody on sugar of milk so as to get a normal result. Then I ran a squad throughout three weeks on nothing but sugar of milk and then I had sugar days and caffeine days for every individual in every squad.

Q. Tell us the character of the people you tested.

A. My patients consisted of ten men and six women, ranging in age from nineteen to thirty-nine. They were people engaged in mental work, they were students and the wives of graduated students. Some of them had been accustomed to drinking coffee and some had never taken coffee or tea. They all went without coffee and tea for three days before the first week began; that is, ten days before I began to give any of them caffeine.

Q. Tell us what your tests were and if you have any apparatus please exhibit it and explain the significance of it.

A. I had nine tests, some of which were distinctly mental and some distinctly motor. Then in addition to this I had one person write on a typewriter throughout the month in order to show proficiency in such a complex performance as typewriting. I also got a record of the number of hours of sleep every night and quality of sleep, as to whether it was nearly as usual or better than usual or worse than usual. I have all the tests here and I think I could describe them better simply by showing what I did.

I have made over sixty-four thousand measurements and it would be impossible to present them all.

This chart constitutes between twelve and fifteen hundred deficiency curves and these are three of the experiments.

BY MR. MILLER:

Q. Did I understand you to say you were a doctor of medicine?

A. I am a doctor of philosophy.

Q. You are not a doctor of medicine?

A. No, sir.

Q. Not a medical practitioner?

A. No, sir.

Q. Go on.

A. In the first experiment, running through four weeks, I came to certain conclusions. I was not satisfied with their absolute validity because my tests were an hour apart and I could not state what had been done between those tests nor had I been able to trace the effects of the dose of caffeine beyond the 24 hours, and I then performed a three-days experiment in which they came at ten o'clock and I ran them for six hours and gave them a dose of caffeine and then traced the effect for 60 hours, following them continuously except when they went to bed.

My first test was designed to illustrate one of the most simple mental processes which is that of perception, simply looking at a thing and recognizing it and knowing what it is, recognizing that this is a book or this is a chair. I used in that sort of process what I call the color-naming test. I have a chart of one hundred pieces of paper, ten colors repeated ten times. My test was to have a man name the color—black, purple, pink, red, yellow, etc. I measured the time required to go through that test, distinctly recognizing the name of each color. That was a test simply of perception.

Closely related to that is the cancellation test. There are 1,000 numbers on this slip; the test is to go through there marking out all the threes or all the fives, as the case may be, so that a man must recognize a three as a three and mark it out. It is again a test of simple perception. The results of that test are shown in this chart. This is the color-naming test and the curve for the color-naming test is absolutely typical of many of the mental tests that I put the men through. These are actual curves taken from actual records from one of those days when they worked for ten hours. This green line represents the performance on the first day. The height of the line above the base indicates the quality. The higher the line the better the

work. As a man proceeds he falls down.

Q. Was that with or without caffeine?

A. First they took a dose of sugar of milk only on that day. You will notice that this green line shows certain irregularities due to normal variability. At about 2 P. M. they begin to fatigue and their curve drops rapidly or constantly until 10 P. M. This is normal here.

On the next day they came and started out as shown by the purple. They started at the same point and they began to fatigue just about as on the green day, and at that point I gave them caffeine and the line rises very clearly after the first hour and from that point on it is constantly higher throughout the day; that is, they were stimulated, they did better work, kept up better work until the end of the day.

They came the next day and I gave them only sugar of milk, to test if there was any secondary depression resulting. They started from the same point as on the other three days, showing absolutely no depression there, and then they followed along here, if anything, showing a little better than they were on any other of the other days; and then about 2 P. M. they fatigued, just as on the other days without caffeine, but they never dropped quite as low as on that first day. I had then traced the action of that dose for 54 hours, after taking it, and got very marked results of stimulation and absolutely no depressing results from it.

The next is the opposite test. Here I have a list of fifty words and the test is to go through that list of words and name a word that is the opposite to the word down there. Shallow, deep; innocent, guilty;—they must go through there and instead of the word there they must give the opposite. It is a more complicated process than the other. I ran that test throughout a month. I have not the complete curves for that process here, but the results absolutely agree with this other curve. This sort of curve could be given as typical for the opposite test. You got some more stimulation with absolutely no secondary results.

The Court: When you say "this sort of a curve," it does not show in the stenographer's notes.

The Witness: I mean this whole Chart No. 1.

A. (Continuing) The next test was still further complicated and it is a little harder, still a mental test. I have a card with a lot of numbers of two places running from 17, and the test is called the calculation test, and the calculation is to go through that list and add 17 to each of the numbers mentally without the aid of a lead pencil, and to call out the list as quick as possible. There are 100 in that list. The first month I used 50 and in the intensive experiments of ten hours a day I used 75, and on the ex-

periment with syrup I used 100, and the observer held the key and when the answer was wrong he said no and the man had to give the correct answer in every case, and he had to do the test properly, and always had to do the same amount. The calculation test shows more stimulation than any of the other mental tests, and I submit chart No. 1 as typical curve for the calculation test as it is for all the simple mental tests, although the results shown in the calculation tests are even greater than shown in the perception and the opposite tests. By giving caffeine I quickened them two-thirds, whereas it was 150, under three grains of caffeine it showed 100, so that the result was marked stimulation which characterized not only individuals but showed up in the squad averages.

Q. Was that followed by secondary depression?

A. In no case in any of my tests is there any secondary depression to be detected.

Now, the fatigue squads here simply give the results like the green and black lines. On that last three days the effects were not abnormal, they tired out the same; on the last three days, to be sure that the control squad was not abnormal, I gave them the caffeine and immediately they showed the same sort of performance that the other squad did.

Q. What kind of a performance?

A. Represented by the green and black lines.

Q. That is what I wanted to know; they were boosted up.

A. The next test was of slightly higher and more complicated mental processes, what is called the discrimination test, the test of judgment — no, since I have the chart on motor tests I will take them up next.

I had three motor tests, all of them are on this board. One is the steadiness test. Here are three holes; the test was to take a metal rod and, holding the arm out, to insert it in that hole without hitting the sides of the hole. Every time it hit the side of the hole the click was recorded automatically by an electrical marker. That determined the number of times the hand hit the sides. The second test was the tapping test, to let the arm rest on the elbow and make four hundred taps this way and the tap is recorded. That is purely a test of tapping. Four hundred taps had to be taken. We took the time for the first two hundred and the time for the last two hundred and the time for the total number.

The third test was the co-ordination test. Here are three holes and the tapping was done this way—and the test is to hit the hole, and when the rod goes in and hits

the bottom it rings a record on the apparatus only when it goes absolutely in the hole and strikes the bottom. The test was to ring up 100 records on that co-ordination test. For the steadiness test—I will take them up in turn and describe them. In the case of steadiness any kind of a dose produced unsteadiness. A dose of sugar of milk or water or syrup, with or without caffeine, produced unsteadiness. It is a very sensitive test. Anybody coming in the room would produce unsteadiness. The only difference between the pure caffeine and the other substance is that in the case of the other substances the unsteadiness passes away rapidly. The caffeine produced slight unsteadiness which is recorded in the unsteadiness test, and the unsteadiness persists for a greater time than the unsteadiness produced by other substances. In the tapping test there was clear stimulation. A man can keep up his initial speed longer and he reaches the 400 taps in quicker time. Here is a curve which is typical of the tapping performance and it is the actual curve produced. This one is the actual chart, No. 2. The first day is represented by the purple line and a man starts out tapping and it is registered up and down here, and as he goes on he shows an abnormal variation. Here I gave him caffeine and his curve rises for about two hours. He starts about half an hour after the dose and it lasts about two hours. That is the general result of the motor processes, stimulation comes quicker and don't last so long; but in the case of mental processes stimulation don't come so quickly but persists longer, sometimes for 24 hours. After that, from the stimulation the man falls down but he does not fall below his normal. Here is the normal that he started out with. He does not fall below that.

The next day he comes and he starts at the same point, going once a little below and once a little above, but averaging the same, going throughout the day showing only a tendency to drop as normal fatigue towards the end of the day and never making a record below that. That is a typical result of the caffeine test, transient stimulation with no subsequent depression at all.

I forgot to say what the result was—there were three tests in which I found no result at all; one was the cancellation test. I have been unable to detect any influence of caffeine of any kind on that cancellation test.

In the case of this co-ordination test, the result is this: When a man comes to it after having taken caffeine, he feels tremendously exhilarated, quite active, and he simply lunges at that, showing stimulation; but in this test stimulation is not particularly desirable. Feel-

ing exhilirated makes a man miss and sometimes he shows a slower record after caffeine than before, very clearly. This I state from my own observation of those 16 people, the result of this stimulation causing this change in that sort of test.

Now, I have next two other tests on discrimination and judgment. One is that which is represented by this which I call the discrimination reaction. I have back of this screen a little slide in which I can put a color; sometimes that color is red and sometimes blue. The moment a color appears and it can be distinguished and the key is pressed it cuts this pendulum off. This pendulum always swings at a certain rate, governed by the law of gravitation, and I have here this scale cut off in one one-thousandth of a second, so if that swings so far I can determine exactly how long it has taken. If it swung to this point that would be 350/1000ths of a second. I had it fixed so that my subject did not know what was going on behind this apparatus. Sometimes I put in a blue and sometimes I put in a red, and whenever the blue color came he was to press with his right hand and when the red came he was to press with his left hand. I had a buzzer so that I could tell whether he hit with the right hand or the left hand. So he had to judge just as quickly as possible the blue from the red, and when it pressed it stopped this pendulum; that was discrimination, judgment and evolution of one of the highest types. I measured that in thousandths of a second so that it is a very delicate test.

At each test I took ten trials and made a record of the time and took the average of the ten trials. I will show the result of that experiment. When there was no caffeine given, or sugar of lead, there is no change, there is not much fatigue in that sort of a process. The line runs fairly level as shown by that green line.

This chart is the actual chart typical of the performance of the discrimination test. The first day is represented by the purple and the red. You see, they start out always well in the morning. That is one thing that comes out clearly. The morning tests were the worst; they have to be warmed up to it. Then they start out here following this line at this point and I gave them here caffeine and the result is the same as the result in the co-ordination test. For a short time the reaction is slow for the simple reason they are stimulated and they sort of experiment, anticipate what color is coming and they make mistakes. I check the mistakes and then when they find they are making mistakes it slows them up and they put on brakes. In that sort of a test stimulation is not wanted. It slows them

down and then the curve rises to show quicker discrimination, quicker evolution, and they show better than the first day, and then still better than the day before. The green line is higher and continues higher until away down to seven o'clock the next day. That is, sometimes the stimulation in the mental processes lasts 24 hours or more. At that point the lines drop, showing normal fatigue. I was not satisfied with that and wanted to know what happened — what would happen the next day, and they came again and started on the black line a little better than the first day, showing absolutely no secondary depression, and following along here pursued very much the same sort of a curve as on the green day, showing slight fatigue at the end of the day and in no case coming up to the red line. That is the typical result of one of the discriminating reaction tests.

I had one other mental test and discrimination test, and that was the weight. Here are the materials with which I performed the weight test. I have not weighed these, they were sent to me by an assistant, but here is the large one and here are these smaller ones all the same size and appearance but different in weight, from 15 grams up to 80 or 90, so that there is quite a range. Now, the normal individual comes along and gives an example of illustration. He picks up this weight and he picks it up this way. Then he picks out one of these lighter weights which may be 25 or 20, or 55, and he thinks it is lighter, and there is an illusion, and the normal individual always gets that illusion without exception.

Now, my object was to know whether caffeine produced any change in that sort of judgment, whether it increased the man's susceptibility to illusion. A man picks up one of these weights, putting the lighter on one side and the heavier on the other, and the intermediate in the middle, and then he changes from the second or third one and it seems precisely the same as this big one; and the only result that came at all from that test throughout the whole month was that with all the people the illusion became greater; with the people who took sugar throughout the month the illusion was more; with the people who took caffeine throughout the month the illusion was more, and the caffeine didn't produce any more illusions than they got from the sugar, or the normal, at all.

Q. You say you performed some experiment on a typewriter, a typewriter test?

A. Yes, sir. The woman who performed that was a typewriter, fairly competent; that is, she knew how to typewrite by the touch method so much so that she showed

very slight improvement as the month went on showing that she was practically down to her level. She wrote from Ruskin's *Sesame and the Lillies;* she wrote three pages a day, and during the first month she did that seven times every day, so that she wrote 21 pages from the book as quickly as she could and her time was taken. Then I counted up her errors, I have not been able to complete that, but so far as I have been able to count there has been no difference in the number of errors nor any special difference nor substantial difference in the speed of the typewriting. Typewriting is one of those complex acts which seems to involve a great many mental processes and yet as I say, I saw no difference.

Q. Explain how much caffeine you used and the time you gave it to them.

A. I think I stated that. With one squad that took it three successive days, then three days of sugar of milk, then three days of caffeine, then three days of sugar of milk. The dose varied from one to six grains, giving them one grain on two occasions and two grains on two occasions, and three grains on two occasions, and four grains on two occasions, and then six on two occasions. It was simply given in the form of a gelatine capsule. As to the hours, the morning hour was from 10 to 12, and giving it at that time it gave no perceptible difference.

Another squad took it at meals, at one o'clock on alternate days. That shows less stimulation than when taken in the afternoon. It not only shows it is not only less but less in the afternoon than when taken with the meal. The fourth squad took it in the middle of the afternoon, in doses of one to six grains on an empty stomach, about two and a half hours after lunch. Those people took it in one dose all the day up to six grains of pure caffeine alkaliod. The other squad I have not described yet was people to whom only sugar of milk through the mouth was given and they took it at the same time that the squad took caffeine. There were four of them and of that four two of them took it with their meals and two in the middle of the afternoon.

Q. Does that chart represent the summary of the effects with and without caffeine?

A. This represents the seven days of caffeine on Coca Cola syrup and on syrup of Coca Cola which had no caffeine in it. I had twelve subjects in the experiments and they ran for the sixteen days and I tested them five times a day. On two of the days I gave them nothing at all. I called them blank days. I have taken as the normal for each day the first three performances of the day, 7:45,

10 and 12:10. Those were the three normal and I took the average of that. Then the two in the afternoon after taking the syrup about three o'clock and 5:30, and I calculated the ratio on that afternoon's work to the forenoon's work to see whether they got fatigued or stimlated. When that ratio is just 100 it means that the afternoon work is 100 per cent. of the forenoon's work and there is no difference. When the ratio is over 100, it means they are fatigued; when it is under 100 it means they are stimulated, that they could do it more quickly, so that these blank days represent the average—I have my five different mental tests here, the perception tests, the opposites test, naming the color, the tapping and the discrimination. I left out the cancellation and the size, weights and the three-hole tests because the motor test had to be done in the same room that all the other squads were waiting for and it took so long, so that by dropping out the co-ordination test and the discrimination test I was able to try them all at the same time. The co-ordination test would show the same as the discrimination. For the blank days each of those figures is the result of three people, and in every case there was fatigue, 2.7, etc., an average of three per cent. Now, on two other days I gave them Coca Cola syrup and changed the caffeine content but in every other respect it was identical with the Coca Cola except it had no caffeine in it. On one day I gave one glass, one ounce of syrup with carbonated water, just as ordinarily served at the fountain; and on another day three glasses. When they took one glass they took it at 3:10; when they took three glasses they took one and a half glasses or an ounce and a half at 3:10 and one and a half at 5:30. Then we had fifteen minutes before starting the test. So that this again is an average of 24, twelve people two successive days. Giving the Coca Cola syrup I gave them one day one glass, used all the people of the same squad. On another day three glasses and on another day five glasses. When I say "glasses" I mean ounces of syrup taken with carbonated water. As a matter of fact when I gave them five glasses I did not give them five glasses of carbonated water; I gave them three in a little over an ounce and a half of water in the glass filled with carbonated water so that they had only three glasses of carbonated water with that.

Q. Were those doses all at one time?

A. No, sir; when I gave them three glasses of Coca Cola they were taken at 3:10 and 5:30. When I gave them five glasses the first glass was given immediately after 1

o'clock, the second was at 3:10, and the third was shortly before 5:30, so that all three glasses of Coca Cola were taken within a period of about four hours in the afternoon.

Now, the result shown on this chart is the average test and then the average of the whole. Now, there seemed to be a certain amount of stimulation in every test; a little better on the syrup than on the blank days. That is 100; that is, they didn't get any stimulation from the morning's performance nor in fatigue. They are balanced. When you come to the Coca Cola syrup, you get a less average than on the syrup day, so that there is stimulation. There is an average of 98.9 comparing with the blank days, which means a stimulation between .4 and .5 of one per cent. in that individual's performance, and the difference between the 100 and the 98.9 is due presumably to the caffeine product. I have shown in my previous chart that there is no secondary depression following.

Q. Did you make any test showing caffeine on the quality and amount of sleep?

A. I did. On every morning after my subjects returned to the laboratory for the day's test, I made a record of the approximate hours of sleep they had had during the night, and a description of that sleep, characterized as "Good as usual"—"Better than usual," or "Worse than usual," and I have compiled statistics for that month, and also for the subsequent week, of the syrup. One represents "Sleep better than usual," 2, "Ordinary sleep," as good as usual, and No. 3, "Sleep worse than usual." And I have averaged the result for each of those sixteen people, for the 28 days in the first month, and I have distinguished between the first week of the experiment in which I gave everybody sugar, nobody caffeine. I have taken the average for this and also separated the days on which everybody took sugar and calculated those days and separated the days where they took one or two grains, or three or four grains, or six grains, of pure caffeine alkaloid, so that when this number is less than 2.00, that means "Sleep better than usual." When it is just 2, it means "Sleep as usual," and when it is going toward 3.00, "Worse than usual." It would actually have to be 3.00 to get worse than usual, but we never get quite to that. Some people might show a tendency to be worse than usual, and anything above 2.00 is a tendency to worse than usual.

Q. Now, what was given the four squads?

A. One squad sugar throughout the month; another squad sugar and caffeine alternately; another squad caffeine with their morning meal, and another squad caffeine in the middle of the afternoon. Now, take these lines one

at a time: This squad went on sugar and you get variability here even when they take nothing but sugar. Sometimes it is 1.87 and sometimes 2.06; sometimes better than usual, sometimes worse, taking the people who took nothing but sugar. Then here take the three days of sugar and three days of caffeine, and you get for the first week when they had only sugar, 2.13; and here it is 2.7 and here where they took one or two grains in one since dose, 2.16; and when they took three or four grains, 2.20, which is not appreciably greater than 2.13.

Mr. Miller: I wish you would tell the results.

A. (Continuing) The variability of this curve of figures is considerably less than the variability of this line of figures which represents the squad which did not take any caffeine at all, but only sugar. The range here is from 1.81 to 2.06, over .30. The range here is even less than the range of variability in that line. Taking caffeine with the meals for the first week, 2.13, and for the sugar it is 2.20, for the one and two grain doses. There is an apparent tendency to impairment in the quality of sleep, it seems that way, but when you go to the three and four grains, absolutely better than usual, and tremendously better than the first week before.

Mr. Miller: I object to that characterization.

The Court: The objection is sustained.

The Witness: Can I compare the figures?

The Court: Yes.

A. (Continuing) 1.92, which represents a higher value than 2.13, which is the average for the first week, and also a higher value than 2.20, which represents the sugar days and for the six-grain doses a value of 2.17 which is better than on the sugar days throughout the month, and very slightly larger than the first week before the experiment.

The average for the six-grain doses is 2.17—that is what I just talked about, — the average for all the caffeine days, one to six grains, is 2.14, which is slightly higher value than for the sugar days and only 1/100th poorer than on the first week before the experiment. These are the people who took it with their meals.

Now, the people who took it in the afternoon, their average the first week is exactly 2.00, the same as usual. On the sugar days a little better. The one and two grain days again 2.00, and on the three and four again 2.1. Again, the variability of this row of figures is much more uniform than the variability in the amount of sleep with only the sugar squad. Only when you get to the six grains does it go up. Here is the six grains of pure caffeine alkaloid taken at one dose at one time in the afternoon, and there is

no doubt that that amount of caffeine taken in its pure form disturbs sleep.

Q. What other experiment did you make in regard to the effects of caffeine that you call the intensive?

A. By the intensive experiment I mean those three days in which I had my people come and work for ten successive hours and I have already given the curve showing the results of this experiment and they conform absolutely to the other. I have another statement concerning sleep. This is the sleep record taken the week when instead of caffeine I used Coca Cola syrup and syrup without caffeine, and on two days gave no dose at all. I put the whole twelve in one squad and there were two days of this kind when I gave no dose at all.

The Court: What was that dose of syrup?

The Witness: On one occasion one ounce, on another three ounces of Coca Cola syrup, except that there was no caffeine in it.

The Court: What was the dose of Coca Cola?

The Witness: One glass, one ounce, and three ounces and five ounces of the Coca Cola syrup with caffeine. I had both kinds.

The Court: Just pure Coca Cola syrup?

The Witness: With carbonated water. I served the syrup on the syrup days with carbonated water just as I did the Coca Cola.

The Court: When you say one glass, that means a glass containing one ounce of Coca Cola syrup and the remainder of the glass filled with carbonated water?

The Witness: That means the amount of syrup required to come up to that mark which was found on the Coca Cola glass. I have never tested the amount; I call it one ounce, and one glass means that much syrup along with the rest of the glass filled with carbonated water. Here I show the kind, and here the quality of sleep. Under 2.00 is better than usual and over 2.00 is worse than usual. On the days on which no dose was taken, the average quantity was 1.79, somewhat better than usual. On the days on which they took only syrup, I have the average here of the twelve people, also the average result of one ounce, and three ounces of syrup, 2.08.

Now, in the Coca Cola I have separated the one and the three and the five glass doses and with one glass of Coca Cola the average was 1.80 as compared with 1.79 when they had no dose, and the two values are identical. As to the three glasses of Coca Cola, the average is 2.09, an identical value with 2.08, which was the average for the syrup days. Only when we come to the five glasses, the

five ounces of Coca Cola taken within a period of four or four and a half hours in the afternoon, does the figure rise above the syrup days, two and a half.

That value is very closely like the 2.51 which I got here from the six grains of caffeine alkaloid.

Q. Did you find any difference between the effects of Coca Cola, taken as it is made, and the effects of caffeine.

A. The effects of caffeine taken with Coca Cola are very similar to the effects of caffeine taken with meals —the stimulation.

Mr. Miller: I object to that in so far as it deals with the physiological action of the drug.

Mr. Hirsch: I will restrict it then.

The Witness: I am referring to the performance of these mental tests.

The action of caffeine taken with Coca Cola syrup, as I stated, is very similar to the action taken with meals; its action is reduced in degree and somewhat retarded in time.

Q. Now, doctor, from all of your experiments will you please give us a summary of your conclusions as to what the effects of caffeine is by itself taken with meals and with Coca Cola syrup.

Mr. Miller: You mean the physiological effect.

Mr. Hirsch: Yes.

The Witness: I conclude that the use up to 6 grains of the pure caffeine alkaloid, the influence of caffeine on the mental processes depends somewhat on the type of the process involved, and has more or less effect on the mental processes, the processes of reasoning, memory, perception and direct thinking caffeine accellerates and has a mild stimulating effect, which would give in the quantity as it does, in the case of the motor processes, seems to persist for some time, I have found it persisting for 24 hours. I am not prepared to state whether that is actually due to the presence of caffeine, or whether the organism has profited by being steamed up on the same day and still profits thereafter.

Q. How long did you watch the subject to find out whether any re-action or depression?

A. In the case of the intensive days I began at ten o'clock on one day, the third of the month, I gave the dose at 3:15 on that day and for the remainder of that day through the next day, testing them through the ten hours which they were at the laboratory and through the next day which makes a total of 56 hours in which I tested them by the conditions present—and then they did not stop, they came right on the next day and I tested

them five times a day for the next week.

Q. Did you find any depression?

A. I found practically no indications of depression—on the motor processes on each dose justified—the amount of speed—the amount of performance—the effect of caffeine is very similar to that on the mental processes in that it exercised a light stimulating influence, and does not persist as long as in the case of the mental processes—involving discrimination and co-ordination—there were also marked stimulations in the very beginning, and in order to make a record of that test I found it necessary to withhold the process for a few minutes and after that is passed I found at the end of 24 hours no depression.

Concerning its effect on sleep my conclusion is that if given in moderate doses and by that I mean doses of 1 to 4 grains—even the pure alkaloid caffeine when taken in a single dose does not appreciably effect the quality of the sleep. When the dose exceeds that, at least when 6 grains is taken in the pure form, it seems to slightly impair the quality of sleep.

Q. What is your conclusion as to the taking of caffeine as it appears in Coca Cola?

A. As caffeine is taken with Coca Cola syrup its action is, so far as I have been able to determine, qualitatively the same except that it is less in degree, and as a result of that, the use of Coca Cola, even with putting on the brakes the stimulation results at once, because its action is quantatively less, and its action on these mental, or in these mental tests as caffeine, when taken along with meals and food substances.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. If I understand, this last chart, you have put in evidence there, and which is headed "Influences with and without caffeine" — wherever the figures drop below 100, I mean 200, the quality of the sleep is better because 200 is normal or the basis or unit, is that right?

A. Yes, sir.

Q. And of course according to that when it exceeds 200 it is worse.

A. Yes, sir.

Q. Now, comparing your no dosage of caffeine, that is the Coca Cola syrup, with one glass of Coca Cola, which you say was Coca Cola syrup, state if the sleep was not, according to your own showing, a better quality, was not better where you took no caffeine than where you took one glass of it —

A. No, sir.

Q. Well, one, is 1.79 and the other is 1.80.

A. In any set of experiments it is always necessary to record probable error, and that probable error of such a difference of 1/100th per cent. is negligent.

Q. That is negligible?

A. Yes, sir.

Q. At the same time it does show a lower percentage, and if it proves anything at all it proves without the Coca Cola a man sleeps better.

A. No, sir, it proves there is absolutely — there is no difference.

Q. You say there is no difference between 1.79 and 1.80?

A. No, sir.

Q. Well, if you were counting dollars you would think there would be a good deal of difference between 1.79 and 1.80.

A. I am not counting dollars.

The Court: Well, never mind about that.

BY MR. MILLER:

Q. This syrup that you used, where did you get that?

A. Well, this first syrup —

Mr. Hirsch: (Interrupting) We will state in order to save time that the ingredients were just as this witness stated.

Mr. Miller: But I want to know where you got it.

The Witness: The Coca Cola I bought in open market in Charles Friedgen & Company, 120 Amsterdam Ave., New York City, the jug of Coca Cola I bought out of the market without stating what I wanted it for. The syrup was mixed in my laboratory by Mr. Culpepper of the New York branch of the Coca Cola Company, and was tested for caffeine.

Q. By whom?

A. By Dr. Chandler of the Department of Chemistry of Columbia University.

Q. Can you make the test yourself?

A. No, sir.

Q. And to the extent that you stated that was simple syrup you base that purely on what somebody told you?

A. Yes.

Q. And to the extent that you state that there was no caffeine in it you are basing that on what somebody told you?

A. Well, I am basing that on analyses made by the Department of Chemistry of Columbia University.

Q. But that is not of your personal knowledge?

A. No, sir.

Q. And so the Coca Cola syrup, or the supposed Coca Cola syrup, whether or not there was any caffeine in that, is purely based on what somebody told you?

A. Well, I bought it in open market.

Q. But that is not of your personal knowledge.

The Court: But that is obvious, he says he bought it in open market.

The Witness: Nobody told me anything about it.

The Court: He says he bought it. I think these are matters of argument that may be properly commented on in the argument.

Mr. Sizer: We will show it was Coca Cola and that it was analyzed by Dr. Chandler.

BY MR. MILLER:

Q. Wait a moment, I am not through with you yet.

A. I just wanted to sit down.

Q. Now, the five glasses that were administered, as shown on the bottom of this chart you have, now what time of the day were they given, I didn't catch that?

A. The first glass was given at between one and one fifteen, in the evening, that is a glass consisting of one ounce of syrup and the rest of the glass filled with carbonated water; the rest of the dose was taken at 3:10 in the evening and that consisted of 2 ounces of the syrup, and the rest of the glass was filled with carbonated water; and the other dose consisted of the same taken at 5:30.

Q. And by the same thing, you mean two ounces of the syrup?

A. Yes, sir, of the Coca Cola syrup with the carbonated water filling the rest of the glass.

Q. It was out of the jug you bought, is that right?

A. Yes, certainly.

Q. Now, when did you leave or when did you separate from this squad you have talked about?

A. You say when did I separate from them?

Q. Yes.

A. Well, during that first month — they came to the laboratory for the hours during which I tested.

Q. That was at ten o'clock.

A. At 7:45 to 8:40; 10:00 to 11; at 12:15 to 1:15; at 3:10 to 4:10 and 5:30 to 6:30. During the intensive periods they came to my room before ten in the morning and I was with them in the laboratory until 9:30 and 10:00 at night on three successive days and the Coca Cola experiments were handled the same as during the first four weeks.

Q. That means you do not know what these people took, what they ate, or what they did from the time they left you until they returned the next morning?

A. Well, it means that I have their statement that they took none of those things I have mentioned.

Q. When you said they did not take coffee or tea or anything, that they did not take one form of stimulant or another, that is simply, you mean, you took their statement for it, and personally you do not know how it is.

A. That is all I know; I know the individuals and their reputation and character.

Q. Now, when you came to compiling your tables of sleep which you have exhibited, you are basing your tables on what these people told you.

A. I am basing them on the introspection of the subject which is one of the chief scientific evidences.

Q. Well, do you base it on what they told you?

A. Well, that is the only method of knowing anything about sleep.

Q. Well, another method would have been to have observed to see whether or not they slept.

A. He would not know anything about it.

Q. He would not.

A. No, sir.

Q. Well, he would have been able to know whether or not they tossed about in their sleep and whether they slept perfectly or normally.

A. He would know their movements, yes.

Q. And you are not prepared to state as to that except what they told you?

A. No, sir.

Q. Have you written any works on Pschycology?

A. I have contributed articles to the Pschycological Review; the American Journal of Pschycology; the Journal of Physiology and Pschycology; the Arizona Journal of Education; the Archives of Pschycology, and I am editor of experimental numbers of the Archives of Pschycology.

Q. Have you or not written any books on Pschycology, and if so give the names of them?

A. I have written a monograph of about 90 pages; I don't know whether you would call it a book or not.

Q. What is the title of it?

A. "The Inaccuracy of Movement."

Q. "The Inaccuracy of Movement?"

A. Yes, sir.

Q. When was that published, and by whom?

A. Published in the Archives of Psychology, which is one of the Columbia contributions, and was published in

the spring of 1909, June, 1909, and is volume No. 3, if I remember correctly, of that series.

Q. Have you a copy of that with you?

A. No, sir.

Q. At the time you conducted these experiments on the squads that you spoke of, you were connected with the Columbia University?

A. Yes, sir.

Q. Isn't it a fact that the object of that University is to advance science and to advertise it to the world?

A. That is one of them?

Q. The advance and investigation of science and then the advertising of the result is one of the objects of your investigation?

A. (Interrupting.) One object of that University is scientific investigation; there are other objects.

Q. Now, there is not any commercial feature connected with it, that is to say such as experimenting for the Coca Cola Company, these are not investigations by that University, are they?

A. The University has various appropriations for scientific research which are conducted —

Q. Was this investigation of yours an investigation on behalf of the University or yourself?

A. This experiment was undertaken on my own account; it was performed in my own private laboratory.

Q. You stated, if I understood you, that the result after taking six grains of the alkaloid is to impair sleep, that is the caffeine?

A. That is my conclusion from my experiments with six grains taken in a single dose, it disturbs sleep.

Q. That would be the result of your observation and experience on adult persons?

A. On persons ranging from nineteen to thirty nine years of age.

Q. Did you make any investigations or any observations on children to see what it would be?

A. No.

Q. During the period of adolesence or say from seven to eighteen years of age, you made none I believe?

A. No, none at all.

Q. I understood you to say, I think that is correct that you did not mean to give any opinion as to the wear or tear of the body during this experimental stage, physically I mean?

A. I stated nothing except what I drew from my conclusions, treating the functions as shown in these mental tests.

Q. I mean as to the tissues?

A. No sir, nothing whatever.

Q. And on the muscles, you express no opinion?

A. No sir, none at all. I am proving the functional psychology, and all I said I intended to refer to the functions of the tissues.

Q. When you stated one lunged less on the second day after he had caffeine than he did on the first day. You simply meant that he did not manifest the peculiar symptoms on the second day as noticeably as on the first day?

A. I don't know that I made any statements about a lunge on the second day.

Q. Didn't you say that a subject after receiving caffeine lunged to do a certain thing, and that on the second day it was less than on the first day?

A. I don't remember; I will state if I did use the word lunge after taking the dose there was that evident lunge caused by —

Q. (Interrupting) The question I asked you, is what you mean by "lunge" in that connection?

A. I can show you.

Q. Well, you can tell us, also?

A. I can show you and also tell you. In that co-ordination test I mean the subject grasped the stick, or grabbed it going at it vigorously.

Q. And that is what you mean by the use of the word "lunge?"

A. I mean behaved vigorously —

Q. In other words, an over stimulation as compared with normal?

A. Well stimulation.

Q. That meant above the average or normal?

A. I don't consider normal a stimulation in the sense I use the word at all.

Q. Didn't you use the words "over-stimulation" and if so what did you mean by it?

A. I meant the over-stimulation that was present in the two or three hours afterwards.

Q. Isn't it necessary doctor or professor —

A. (Interrupting) I didn't catch that.

Q. Isn't it necessary to determine the effect of any drug either scientifically or otherwise, to take the normal conditions as a basis to start with?

A. Yes.

Q. I will ask you to what is the effect of the administration of this drug as compared with the normal?

A. Stimulation followed by no secondary depression.

Q. And when you say that you mean none you discov-

ered?

A. Certainly.

Q. Now, what was the cause of this putting on the brakes that you spoke of, what was the reason for putting on the brakes as you described it in your examination in chief?

A. What was the reason?

Q. Yes?

A. The reason was a man wanted to ring up a better score in the test.

Q. You mean wanted to be more active?

A. When I went to aim at a target I didn't want to feel accelorated or brisk.

Q. If you wish to do steady work why you would not want or wish to go over normal, you would not want stimulation?

A. It depends entirely on the nature—in all these other tests I would want the stimulating effect by it; in the target test the stimulation which immediately follows is not favorable to the test.

Q. Were your weights that you used, these weights you exhibited here, labeled?

A. Yes, sir.

Q. In connection with your other apparatus?

A. Yes, sir.

Q. So that the person who was picking them up could look on the top of the weight and tell what they were?

A. No sir, in no case.

Q. Well, you said they were labeled?

A. They were labeled on the bottom by a secret code known only to myself.

Q. Known only to yourself?

A. Yes, sir, and the weight was in no case turned over.

Q. Now, in the case of the typewriter, you have not determined what if any effect the administration of the drug had?

A. I determined its effect with respect to speed and I have not yet had time to work up my complete record with respect to accuracy.

Q. When did you commence these tests, these series of experiments?

A. I began actually on the 3rd of February.

Q. That means that you began the experiments on February 3rd?

A. Yes, sir.

Q. Of this last February?

A. Yes, sir.

Q. Now, which of the tests was it you didn't put in —

you stated you didn't put in all your tests?

A. There were three tests I didn't put in; there were three — you mean in the second experiment.

Q. Well, I understood you to say you didn't put them in and I want to know what it was you didn't put it?

A. I put them all in the first experiment. On the intensive experiment I worked ten hours, I left out three tests, the cancellation test, I had been unable to detect any effect whatever; there was a size weight illusion in which I had been unable to detect any influence whatever, and I left it out, and the other three — same as on the discrimination tests, I had no time to put them through the three motor tests.

Q. Isn't it true that amount of caffeine in some of your conclusions which would effect a man's sleep would depend — that is he took in Coca Cola, would depend entirely on the amount he had taken in something else, for instance if a man —

A. (Interrupting) Should judge so.

Q. If a man was a coffee user who should use less of caffeine if he was not —

A. (Interrupting) I don't know anything about the effects of more than six grains; I don't know whether any effect or whether effect increases — I have only experimented with doses of six grains.

Q. As a result of your experiments, is it true that those who use coffee and tea, say at the rate of two or three glasses per day in which there are present, assuming, five to eight grains of caffeine, should take less of caffeine or any other drug, as a drug in any other form, I should say, than those who do not take it at all?

A. You mean if they wish to perform these experiments satisfactorily?

A. I mean if they wish to sleep well, and yes, perform these tests satisfactorily?

A. All I can base my answer on those I experimented — I have had some people tell me who do not use coffee and tea —

Q. (Interrupting) If you don't know about their character and habits, I don't want any hearsay about it.

A. I don't know, they told me — I can tell you how these people compared with other people —

Q. (Interrupting) I don't want any hearsay; I want it first hand. Are any of your subjects here?

A. They are not.

Mr. Miller: Are these charts put in evidence, Mr. Hirsch?

Mr. Hirsch: We do not mind putting them in evidence.

Mr. Miller: We will ask they be put in evidence.

Mr. Sizer: They may be put in evidence, marked exhibit so and so.

The Witness: I will number them.

Mr. Miller: Yes, 1, 2, 3, and 4, and so on. I don't remember all the numbers I have given.

BY MR. MILLER:

Q. You may do that a little later. You don't know of course what was in the food that these people took, except as it was taken in your or under your observation?

A. No, all I know is everybody had the same things —

Q. (Interrupting) But you don't mean to say they all ate the same amount?

A. No, I didn't say anything about that at all. I say though that the chances are even that the people who took it took the same amount.

Q. Well, we don't want to try this lawsuit on chances?

A. Referring to my experiments — chances are always taken in the consideration of scientific investigation.

RE-EXAMINATION,
BY MR. HIRSCH:

Q. Are you or not employed to instruct ad. men or advertising men in New York and if so what is the nature of the instruction that you give them?

Mr. Miller: I object to that, we all know what instruction advertising men get.

Mr. Hirsch: I mean in this particular line.

Mr. Sizer: Result of experience and qualifications— relative to that—

The Court: I do not see the nature of the instruction given to advertising men—

Mr. Hirsch: Discrimination—we were going to further qualify the witness is all.

The Court: Well—you will have to make the question a little more specific.

Mr. Hirsch: Well, I will withdraw the question, your Honor.

The Court: I do not see the materiality of it.

The Witness: Shall I take these charts?

Mr. Miller: Yes, and number them 1, 2, 3 and 4 in the way you referred to them.

The Witness: All right.

(Witness excused).

Mr. Sizer: When Dr. Wesener was on the stand on Friday he was asked on cross-examination a question with respect to a number of so-called tea and coffee pois-

ons, and he said he had not examined at that time what it was, and he would return for further cross-examination, and he tells me he has made that investigation and is ready to conclude the testimony.

The Court: Very well.

Mr. Sizer: Dr. Wesener come around please.

J. A. WESENER

resumed the stand for further cross-examination:

BY MR. MILLER:

Q. Doctor Wesener, you have examined the article by Dr. Bullard relating to the effects of tea and coffee drinking and disorders of the nervous system reported in the minutes and proceedings of the Massachusetts Medical Society, these books sent you for that purpose?

A. I read that article by Dr. Bullard, I believe it is on tea; I do not know whether it is on coffee.

Q. And the effects and the evil effects there referred to are described by the writer to the caffeine contents?

A. I don't think so. If you will hand me the book I will read you the passages I have marked, and I think I can show you they do not refer to the caffeine.

Q. I want you to read?

The Court: This witness was asked, as I recall it, to examine the literature to find any instances of caffeine poisoning, any injurious effects of caffeine—

Mr. Hirsch: Serious effects—

The Witness: I think my answer was limited to caffeine—I think the question was limited to caffeine.

Mr. Miller: I understood counsel went so far as to ask for effect of tea and coffee—

Mr. Sizer: The question I asked whether he knew first of any deaths resulting from caffeine—and, second, when caffeine had been taken in excessive quantities whether the results had been of a serious character or whether detrimental—

The Court: You asked him that in a different form, whether he had found any reported cases of serious or permanent injury resulting from the use of caffeine, resulting in death.

Mr. Sizer: I do not recall I did, but that was the line of examination Mr. Miller was conducting—

The Court: It would not be competent to go into that if you didn't ask him, but if you did ask him it is competent to go into the reported cases—my recollection is you did.

Mr. Sizer: Probably I did your Honor.

Mr. Miller: Now I will ask you Doctor —

The Witness: This is an article relating to tea drinking and the disorders of the nervous system by Wm. M. Bullard, M. D. He starts out by saying the action of —

The Court: We do not care for all the article; we have to economize time—you say it does not report any cases of injurious effects from caffeine poisoning—

The Witness: He says it is mechanically and physiogically—he shows that—

The Court: The question was not asked you whether any authors had expressed any opinion as to injurious effect but whether there were any reported cases, and I shall limit the cross-examination to that matter.

BY MR. MILLER:

Q. I will ask the question then in that form—if there are 213 reported cases in that article, or 153 in that article and reference to another showing 52 more, making a total of—well, 213, reported cases, basing it on the caffeine content of coffee and tea according to Dr. Bullard's statement?

A. I should say no, not to caffeine, it is limited to tea drinking; it does not say caffeine but mentions tannic acid quite often. Some of this tea had no caffeine in it at all, it was some old dregs poured over and over, bringing out the tannic acid and some of them had as much or as high as 17.7 per cent of tannic acid; he says tea poisoning.

Q. Is there anything in this article that Dr. Bullard bases this conclusion on as to those two or three cases of poisoning except the caffeine content of coffee or tea?

A. He says in that article he means the effects of tea, and speaks of it as tea poisoning, and he says in a previous article by the same man that often these effects are very much pronounced by the use of caffeine for antidote, and in that case used caffeine for an antidote, for these cases — as a part of the article — tea poisoning produces a condition of irritability —

The Court: (Interrupting) That is beyond the limit of cross-examination — it is limited to chronic cases of caffeine poisoning or to cases resulting from caffeine poisoning.

BY MR. MILLER:

Q. I wish to ask the question in this form — state whether or not, Doctor, Doctor Bullard in this language or rather in this article ascribes these cases as poison of caffeine or its equivalent, which is theine in tea?

A. I don't think he does. I do not remember of his making that statement.

Q. You don't remember his statement?

A. Not as your question, as you have stated it; I would like to see if it is there.

Mr. Miller: Without cross-examining the witness in detail as to the entire article, as adversary counsel have seen this I would like to offer the article in evidence, to be filed as an exhibit to his deposition.

The Court: Hand me the article and I will look at it and see. I will rule on it tomorrow morning.

BY MR. MILLER:

Q. Now, dealing especially with caffeine you examined the article appearing in the Boston Medical and Surgical Journal in 1909 which was called to your attention or sent to your room yesterday —

A. By whom was that article written?

Q. It was by Wesselhœft.

Q. Does not that author there refer to particularly the caffeine content as producing disorders which he writes about?

A. Well, I would have to answer you by saying that was an inspired article.

Q. But I am asking you the question if he does not refer to the caffeine content pure and simple as producing the conditions I referred to?

A. I say that article was inspired — that he was inspired when he wrote that article.

Q. That is not responsive to the question?

A. He refers to caffeine —

Q. As producing these disorders, don't he?

The Court: Reported cases you refer to, Mr. Miller?

Mr. Miller: It is an article of very great length; yes, there are numerous reported cases here as I understand it. This may be filed, but Dr. Wesener has expressed a different opinion—

The Court: Limit it to the rule laid down for cross-examination—

BY MR. MILLER:

Q. I will ask you to state if there are not reported there as coming within the doctor's personal observation cases—

A. Yes, those are reported cases, but not one of those cases show that the caffeine in any way had anything to do with the effects he described there, and this gentleman furthermore writes like an advance agent of a decaffeinized coffee.

Q. And you are testifying somewhat like an advance agent of the Coca Cola Company, Doctor?

A. No, sir, I don't think so. I would not call that a scientific article; he has never done any scientific work. I could not find any reference that he referred to in the book, and I looked that up about two months ago.

Q. Then you made an investigation of the literature?

A. Oh, yes, I have seen that article.

Q. You did make an investigation of the literature on this subject of caffeine some months ago?

A. I think I have read nearly all or looked over something like a thousand abstracts on caffeine.

Q. A thousand abstracts?

A. Yes, sir.

Q. And did you run across, in your examination, these thirteen cases reported by Dr. Witthaus in his book?

A. I did not look at these cases as given in Dr. Witthaus' book; I probably run across them.

Q. You didn't look them up?

A. I didn't read Dr. Witthaus' book.

Q. Your search was not so thorough, then, on the subject?

A. Yes, I think it was very thorough; I think a thousand abstracts would be pretty thorough.

Q. You read those that were favorable and not those that were unfavorable?

A. I read everything I could find on the subject of caffeine.

Q. You could easily have obtained Dr. Witthaus' book?

A. Yes, but his book is a text book and I went to the indexes where all the subjects on caffeine are properly indexed and referred to and easy to look up. I do not say I read all of them but I did my best to get as many as I possibly could.

Q. I want to ask you if you read or consulted in that connection the work by Dr. Kobert entitled "Text Book of Poisons."

A. No, I have not read Dr. Kobert on Caffeine.

Q. Did you not read either Prof. Kunkioki — what he said in his text book on toxicology respecting caffeine?

A. I did not.

Q. Did you or not read what Dr. Kunkill said in connection with your reading on caffeine?

A. I did not.

Q. Did you or not read Lewin, what Dr. Lewin stated in his treatise on toxicology?

A. I don't remember I may have.

Q. Can you tell us what he said?

A. I told you I didn't remember.

Q. Did you read what Dr. Vaughan said in his work on

Cellular Toxins?

A. Yes, sir.

Q. You found there that paraxanthine was classed as a poison, didn't you?

A. I would like to see it; point that out in Dr. Vaughan's book.

Q. I will be more than pleased to do that; I have not the book here but before we conclude your examination it can be submitted to you on that one point. I will send for the book it is over at the hotel.

The Court: We will take a recess until 12:20 o'clock.

(Thereupon the Court took a recess until 12:20 p. m.)

AFTER RECESS.

The court met pursuant to adjournment at 12:20 p. m.

CLAIMANT'S EVIDENCE CONTINUED.

J. A. WESENER,

resumed the stand for further examination:

BY MR. MILLER:

Q. We will present Dr. Wesener —

The Court: (Interrupting) I have examined the article in the Massachusetts Medical Society proceedings on the relation of tea drinking to the disorders of the nervous system which has been referred to, and I am of the opinion that it does not relate to caffeine; it relates to the effects of tea, and of its constituent elements, and I therefore exclude it on the cross-examination of this witness.

Mr. Miller: We have another article which we will now present, but we will be glad if your Honor would examine before passing on it, an article in the Boston Medical and Surgical Journal, and I will submit that to your Honor at the adjourning hour, send it to your Honor's room after adjournment. Now when this witness was excused he was asked —

The Court: (Interrupting) I should have stated more specifically that it does not in my opinion contain a record of any cases of caffeine poisoning or injurious effects resulting from caffeine, that is more accurately the way of stating it.

Mr. Miller: When this witness was excused he was asked as to whether or not Dr. Vaughan in his book classed paraxanthine as a poison, and he said he would like to see the book.

BY MR. MILLER:

Q. I will ask you, I now have the book, if on page 481

and I pass it to him, and will you doctor to examine it and state whether or not I have stated it correctly?

A. Well, Dr. Vaughan in this book here on page 481 gives a table which says "paraxanthine physiological action, poisonous."

Q. Well, that is what I asked?

A. Yes, sir; that is using, however, the word very loosely—that is used very loosely in that connection, and there are other points where he speaks or paraxanthine and I would like to read that —

Q. I have not asked you that but I have asked you merely as to whether or not he classed paraxanthine as a poison, gives that as its physiological action?

A. He presents a table here and simply mentions paraxanthine, gives its physiological action as poisonous —

The Court: Are there any other portions of the book bearing on the subject of paraxanthine as a poison modifying that in any way, that you may read or modify?

The Witness: Yes.

The Court: Then you may read those portions, modifying that very general statement in any way, you may read it.

The Witness: Well —

Mr. Miller: What page are you reading from?

The Witness: Page 403.

BY MR. MILLER:

Q. And that statement I refer to is on page 481?

A. Yes. (Reading) "The physiological action of paraxanthine has been studied by Salomon and by Schmiederberg. Injections into the muscles of 1-2 mg. produced almost at once a rigor mortis like condition"—

Q. (Interrupting) And what is meant by that?

A. Stiffening of the muscle.

Q. Rigor?

A. Yes, stiffening of the muscles. (Continuing to read) "Injection into the muscles of 1-2 mg. produced almost at once a rigor mortis like condition of the muscles affected, with diminished reflex excitability without previous increase. 6-8 mg. introduced into the lymph sac bring on a gradual loss of voluntary motion as well as of reflex irritability."

Q. Please finish that sentence, Doctor, that you were reading from.

A. (Reading) "The rigor is more marked in the anterior extremities, which have a wooden or waxy consistency. Dyspnoea is likewise an early symptom, but as soon as rigor sets in the respirations drop far below the normal and may be absent for several minutes. At times

the lungs are enormously dilated, same as with theobromine. The heart's action is intact till the very last. In mice the reflexes are increased almost to a tetanus."

Q. That is as far as I care to have you read, but you may read anything else you desire.

A. He goes on and refers to experiments or injections of paraxanthine into guinea pigs. Now, all of this refers to the action of paraxanthine when given hypodermically, and therefore, I presume, this table is based upon these experiments, and in this experiment it does not use the word, as far as I can see, "poisonous."

Q. Well, if a thing produces rigor that results in death, you do not call that poisonous—

Mr. Sizer: I object to that. He refers to the application of paraxanthine direct to the muscle, and your Honor has ruled several times that evidence along that line would not be competent.

The Court: Yes, I have excluded it, but I let the doctor read that.

Mr. Sizer: And he read it for the purpose of explaining that the reference in the table referred to particular experiments.

Mr. Miller: Yes, he did, but it was eighty pages behind it, and chapters intervening there—I did not call this out at all.

The Witness: Do you want to see it, Judge?

The Court: If you want to move to exclude that portion, I sustain it.

Mr. Sizer: I did not move to exclude that, but Mr. Miller was proceeding to cross-examine him with respect to what Dr. Vaughan said regarding paraxanthine applied to the muscles as directly; I just called your Honor's attention to the fact that your Honor ruled that would not be gone into.

Mr. Miller: I was cross-examining as to his presumption of what Dr. Vaughan mentioned. I submit either his presumption should be excluded or I should interrogate him about it, one. To make a long story short, I will move to exclude what he presumes. He has read what he considers pertinent there, and I think from that the jury might determine—

The Court: (Interrupting) I sustain the motion to exclude it.

RE-EXAMINATION,
BY MR. SIZER:

Q. Dr. Wesener, does Dr. Vaughan, in discussing paraxanthine or its poisonous effects, refer to in any other place except that portion that you have read?

Mr. Miller: I object to that. The treatise is here and shows for itself, and I am willing to put the entire treatise in evidence.

The Court: But I am not willing to have the entire treatise go into evidence.

Mr. Miller: Asking him to state how Dr. Vaughan refers to it in either particular is incompetent—he may read this entire article.

Mr. Sizer: He was asked by cross-examining counsel if Dr. Vaughan did not refer to it as a poison, and he said he did include it in a certain table, but that at another place in his work he refers to certain experiments and those experiments have reference to the application of it directly to the muscles of animals.

The Court: Well, that table has no connection, as far as the Court can see. It is merely a statement of the word "poisonous," without explaining what it means. I do not see or think it affects the case one way or the other. He does not state there whether it was a poison applied, or poisonous, applied directly, or how it is a poison. The jury have the full benefit of the fact that it appears in the text described as a poison, for whatever it may be worth.

BY MR. SIZER:

Q. I will ask you if you have endeavored to obtain the details of the cases referred to by Dr. Wesselhœft in this article submitted to you?

A. Yes, sir.

Q. Have you made application directly to Dr. Wesselhœft to get that information?

A. I have through a friend of mine.

Q. Were you able to get the cases from him?

Mr. Miller: I object to that as to what was reported through a friend of his; that is hearsay.

The Court: It is sustained, but there was nothing admitted about that from Dr. Wesselhœft, as I recall it. I ruled it did not show any record of any cases, just his opinion about things, which was incompetent.

Mr. Sizer: If that is the case I do not care to ask him any further. Oh yes, I do.

BY MR. SIZER:

Q. I want to ask you if in stating the steps you took in your experiments you omitted any one of the steps, or is there anything now that you desire to refer to in connection with your previous testimony?

A. Why only in connection with the test for caffeine in the urine, I should have said before I shook out the chlo-

roform I treated the urine with ammoniacal silver nitrate and allowed that to stand and filtered that and the filtrate was treated with hydrochloride acid, and then shaken out with chloroform before testing for caffeine.

RE-CROSS EXAMINATION.

BY MR. MILLER:

Q. And what did you state as a result of that? What was the result of that?

A. I found no caffeine.

Q. Well, you state that now?

A. I stated that at that time.

Q. You say you did. You were asked about it, didn't you say you didn't remember at that time?

A. That I didn't remember?

Q. Yes?

A. As to whether I found caffeine?

Q. Yes.

A. I did not say anything of the kind; I state now and I said then and I say it now absolutely I found no caffeine in the urine.

Q. And you state now with emphasis that you were not asked that question the other day and stated you did not remember whether you found it or not?

A. I was asked that question by you the other day and I left out one step in my analysis to prove there was no caffeine present.

(Witness Excused.)

JOHN MARSHALL

the next witness called by the Claimant, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. SIZER:

Q. Will you please state your place of residence and occupation?

A. I reside in Philadelphia, Pa. I am professor of Chemistry and Toxicology in the University of Pennsylvania.

Q. Now, Doctor, please state your education, qualification and experience in chemistry and toxicology?

A. I received my chemical training in the Pennslyvanian College, of Pennsylvania, and then also at the University of Pennsylvania from which I was graduated with the degree of doctor of medicine. I then went to Germany and studied under Goutlinger, and also in Teuberin where

I was graduated with the degree of doctor of science.

Q. And your present position is what?

A. Professor of chemistry and toxicology at the University of Pennsylvania.

Q. How long have you held that position?

A. I have held that title for the past thirteen years, but prior to that I had held other titles in the teaching of chemistry in the University.

Q. Now, Doctor, is the substance caffeine considered or treated in the literature on the subject of toxicology or by persons familiar with that science as a toxic substance, and if it is in any way state in what connection?

A. In the text books on toxicology published in the English language no reference is made to caffeine as a poison because these books have been written particularly with the idea of describing substances that are ordinarily known as poisonous substances, whereas the text books that have been written in Germany and possibly also in France have included caffeine because they are written more particularly from a pharmo-dynamic view point.

Q. What other substances do they treat of in that same connection with caffeine?

A. Oh, they treat of —

Mr. Miller: (Interrupting) I object to that; I submit that is immaterial what other substances they treat of.

Mr. Sizer: I want to show the connection in which they discuss caffeine—it has been brought out that Kobert and Kionki include them, and I want to show in what connection they discuss it, and what the scope of their works are.

Mr. Miller: And it is treated of in connection with other things in the Bullard article.

The Court: I do not think that is what Mr. Sizer means by his question; I think he means to illustrate the use of the word —

Mr. Sizer: Yes.

Mr. Miller: Another point is this—that when Dr. Emerson was on the stand the other day I was asking him as to harmful substances, and I used that term, and asked him whether or not it was capable of being so diluted as to have no physiological action.

Now, your Honor ruled, as I recall, that I could not ask him if he had made that specific statement on a former occasion because of the fact that harmful substance was a different substance from the one here, namely, caffeine.

The Court: Mr. Miller, I do not see the bearing of that on this present question. The only point is you have introduced the fact that in certain German and French books caffeine is treated in the works on toxicology, and it seems

to me to be fair to show the connection in which it is used, and if that is so, and it seems to be reasonable, and I allow it.

Mr. Miller: Then I have no objection considering the view your Honor takes of it.

The Court: Yes.

Mr. Sizer: That is the point of my question.

The Court: Whether they include salt or anything else?

Mr. Sizer: Yes.

The Court: I think that is fair, and I allow it to be asked.

A. Tartaric acid, the acid found in the juice of the grape is included in the German textbooks but is not in the usual books on toxicology. Citric acid is also included as a substance of that character, and they are not ordinarily looked upon as poisonous substances and they are consumed by human beings daily.

The Court: That is enough along that line, Mr. Sizer.

BY MR. SIZER:

Q. Now, do you know or have you ever read or heard of any case of death resulting from taking caffeine?

Mr. Miller: We are not trying the cases of death. We say this is a poison and that is an unfair limitation and not a proper limitation to put on this question, and that is not the scope of the inquiry. It is not whether they were killed but whether they were poisoned. The Statute says: "Deleterious to health."

Mr. Sizer: That was only one question.

The Court: If you concede, Mr. Miller, that it is not a fatal poison, then I will exclude that.

Mr. Miller: I do not concede that.

The Court: Then they are allowed and he may proceed.

A. I know of no authentic case of death having been caused by the administration of caffeine.

BY MR. SIZER:

Q. In that connection, are you a German scholar or familiar with the German language, and if you have read the Allard and the Zenetz cases in the German language, state it.

A. I am not a German scholar but I can read German.

Q. You have read those two cases?

A. I have.

Q. Do either one of them show that the death resulted from the use of caffeine?

A. My recollection of the Allard case, or cases rather because there were two of them, is that the substance that

was administered was not caffeine but was theocin, and, therefore, that seems to me would rule those cases out of consideration entirely. As to whether death occurred from theocin poisoning or whether from the disease with which the individuals were afflicted, I am not able to say. They were not healthy individuals; they were sick individuals.

Q. And the Zenetz case?

A. I am not inclined to believe that death was caused by the administration of caffeine and I think I am borne out in that because as I remember that case was reported in 1899 and even the German textbooks published since then on toxicology do not contain a reference to the Zenetz case as a case of authentic death having been produced by the use of caffeine.

Q. I want to ask you further whether you know or heard or found in literature any case of serious or permanent injury to health following from excessive taking of caffeine.

A. Before answering that I would like to say in regard to the Zenetz case, that there is no absolute evidence that the woman took any caffeine or compound containing caffeine. There was no examination made of the body to determine the presence of any caffeine after death, and as some of the powders, I remember, were not used, no examination of those powders was made in order to determine the composition of the powders which she took. Now, will you give me that question?

(The last question was read to the witness.)

A. (Continuing) When caffeine is administered in inordinate quantities injury does occur; that is, injury that is temporary in character; and there are cases on record, as for example, a case that I recollect now which was reported in Frerich in which about 22½ or 23 grains of strychnine had been —

Q. You mean, caffeine?

A. Yes, I mean caffeine. Had been taken by an individual with injurious results but they were temporary in character.

Q. What was the nature of those results?

A. I have no clear recollection of the picture.

Q. Is caffeine a habit-forming substance in any sense, and if so, in what sense?

A. I should not say that caffeine was a habit-forming substance in the sense that morphine and chloral and cocaine, and substances of that sort are habit-forming drugs.

Q. Have you made any experiments tending to show the influence of caffeine on the nutrition in man?

A. I conducted an experiment under my personal supervision with respect to the influence of caffeine upon what was termed the nitrogen metabolism.

Q. Will you please state what those experiments were?

A. The caffeine that was employed I obtained by writing to Doctor Schaeffer at Maywood, N. J., and he kindly sent me a sample of caffeine prepared by him and I tested it with the meuraxic test, namely, by vibrating it gently with freshly prepared chlorine water and then applying the evaporated ammonia —

The Court: It is not necessary to go into that unless cross-examined on it.

A. (Continuing) I also determined the melting point so that I satisfied myself that the material with which I was working was the substance chemically known as caffeine. These experiments were conducted upon two individuals whom I shall designate as M. and W. M. is a research student in my laboratory and W. was one of my assistants. They were placed on what is termed the folin diet which consisted of cold milk 500 c. c.; cream containing from 18 to 22 per cent fat, 300 c. c.; eggs, the whole of the egg, the white and the yolk, 450 grams; Horlick's Malted Milk, 200 grams; cane sugar 20 grams; sodium chloride, common salt, 6 grams; and water enough to make two liters; and then it required a quantity of water extra beyond that, which was furnished up to 900 c. c. This diet contained all the elements that are necessary to sustain life in an individual.

One subject was between 22 and 23 years of age and weighed 155 pounds; apparent condition of health, good. Showed very slight trace of albumen in the urine. His average coffee consumption was four cups daily, but of course during a portion of the experiment he did not consume any coffee. That was subject M.

Subject W., age 30 weighed 135, condition of health apparently good, and the urine was normal. His coffee consumption was ordinarily three cups daily.

The Court: You mean before the experiment?

The Witness: Yes, sir; not during the experiment. That was simply to show that they were consumers of coffee. It is very difficult to find any one nowadays that does not consume coffee.

These subjects were put on three days preliminary period for diet adjustment, and during those three days no examination of the urine was made; that is, they subsisted entirely upon the folin diet. This was then followed by a three days normal period during which period of 24 hours the urine was collected and examined and then finally

a third period of three days which we term the experimental period during which there was administered each day 39/100ths grams of caffeine which is equivalent to about six grains of caffeine administered in three equal portions of two grains at each administration, and this amount of caffeine was dissolved in a measured quantity of water, 75 cc., and was taken on the experimental days between 9 and 10, and 1 and 2, and 5 and 6, at the time when their other food was taken, so that each individual at each of these periods during the day received about two grains of caffeine and this is a trifle more than the quantity of caffeine that is contained as determined by the analyses which I have heard here in an average cup of coffee.

Now, the nitrogen contained in the ammonia was determined and the nitrogen in the urea was determined and the nitrogen in the uric acid was determined, and in the purin bases and the xanthine and in all the bodies was determined. In the case of M. the quantity of this substance,—there was nitrogen by analysis within the limits of the nitrogen found; that is the high and low limits, of the nitrogen found by Professor Foree on the administration of this diet individuals during a certain period and therefore called the normal nitrogen output. We also determined the quantity of the purin basis and the quantity of the purin basis during the caffeine period was greater than the quantity given off during the second period, namely, the normal period. In the other cases there was very little variation respecting the nitrogen output, and therefore I should say that the administration of caffeine in the quantities which I have named has practically no influence upon what is termed the nitrogen or protein metabolism of a human being of adult age in normal health.

CROSS-EXAMINATION,

BY MR. MILLER:

Q. First, as to your reading: I will ask you to state if you consulted Schmiedeberg as an authority on caffeine poisons, in this investigation which you made to inform yourself on the subject before coming here to testify.

A. I have read Schmiedeberg.

Q. You recognize him as an authority?

A. He is for some things but possibly there are things in there that are not established.

Q. I will ask you to look on page nine and state if Doctor Schmiedeberg does not treat caffeine under the title of "Nerve and Muscle Poisons."

A. The title of that book is "Schmiedeberg's Pharma-

cology," not Toxicology.

Q. How does he treat it? From a pharmacological standpoint?

A. Yes, sir; from a pharmacological standpoint. He includes caffeine —

Mr. Sizer: (Interrupting) I do not know when a man is testifying as a toxicologist that it is right to cross-examine him on some of the other of the allied sciences. This work is a work on pharmacology and the witness qualified as a chemist and toxicologist.

The Court: I think the cross-examination is proper. It is very hard to observe the minute distinctions that are made.

BY MR. MILLER:

Q. Now, referring to the Zenetz case which you say does not bear out the statement as credited to that case by Doctor Zenetz, I will ask you to refer to page ninety-nine of Doctor Schmiedeberg's book and state if he does not there record the Zenetz case as a case in which the heart was spastically affected and contracted, just as Doctor Zenetz does.

A. I do not see any reference to the Zenetz case on page ninety-nine.

Mr. Miller: Will Doctor Boos show him that? I do not speak German myself.

(Doctor Boos pointed the passage out in the book as requested.)

BY MR. MILLER:

Q. I should have said page ninety-seven?

A. Yes, but as I said before this is a pharmacology and I am speaking as to books on toxicology.

Q. What is the date of that Schmiedeberg work that you have before you?

A. 1909.

Q. Now, if you were not speaking as a pharmacologist or not speaking as to the physiological action of this drug, how could you undertake to say that the drug did or did not cause death, from reading the report of the case?

A. There is no actual report of the death of anybody from the administration of caffeine.

Q. That means, so far as you have found?

A. According to my reading and according to my opinion.

Q. But I say now, if you are not a pharmacologist or, rather, if you are not a man sufficiently versed in medicine to tell by reading the symptoms as described by a man who reports a case in connection with the drug administered whether it would cause death or not, how are you prepared

any better than the ordinary layman to tell whether that drug did cause death?

A. In the first place, it has not been proven that the individual in the Zenetz case took caffeine; and, in the second place, from my reading of that case in the original literature, I am inclined to think it is not determined whether the individual died from some other disease,—heart disease, for example, or whether the individual died from caffeine poisoning, assuming that caffeine had been administered.

Q. But there are several of the Zenetz cases, I do not mean to limit myself to one, but in this particular one that is referred to and where you say it is not proved that the caffeine was given, the report by Doctor Zenetz shows that this young woman took those powders?

A. Yes, sir.

Q. That is, caffeine powders?

A. Yes, sir.

Q. That is as near proof as you get of anything in a reported case by some physician who reports the case, is it not?

A. If a physician reports a case he usually reports it from administration by prescription of a substance. This was not administered by prescription but was taken, as I remember, from the medicine chest.

Q. Some powders that the young woman had gone to the medicine chest and procured and then taken?

A. Yes, sir.

Q. Those two powders that were not analyzed were two that she did not take?

A. Yes, sir.

Q. They would not have produced death?

A. No, sir; but they could have been analyzed and their composition determined.

Q. How do you know that they were not analyzed?

A. There is no report that they were.

Q. That merely means that the case does not show that there was an analysis, positively?

A. The case does not show an analysis.

Q. Have you written any book on toxicology?

A. No, sir.

Q. Do you hold that there are, or are not, inherent poisons?

A. I hold that there are not inherent poisons.

Q. Strychnine and arsenic, none of those are inherently poisonous?

A. They evidently have some chemical action and kill by the chemical action.

Q. And caffeine has some chemical action?

A. Chemical action that has not been determined.

Q. Has the chemical action of strychnine been determined?

A. No.

Q. What, if any, difference is there physiologically between theocin and theophyllin, if you know any?

A. I know that theophyllin is obtained from the tea leaf but it is present in very slight quantities in the tea leaf, and therefore, it was prepared sythetically because it was believed it might be of pharmacological value. Therefore, theocin is a name for the synthetic product. Now, whether there is any difference between the physiological and the toxic action of theophyllin and theocin, I do not know.

Mr. Miller: I move to expunge all the portion of the witness' answer except that portion which answers that he does not know whether there is any physiological difference.

Mr. Sizer: That was an explanation —

The Court: I do not think it was. I sustain the motion although it has been proven a good many times.

BY MR. MILLER:

Q. Theophyllin is obtained from caffeine?

A. From caffeine?

Q. Is not caffeine broken up in the system and does it not form theophyllin?

A. Theophyllin is a dimethylxanthine, and, therefore, you may speak of a dimethylxanthine as theophyllin.

Q. Caffeine is converted into that form or is in part when it goes into the system?

A. Yes, sir; that is dimethylxanthine.

Q. In making your investigation as to the determination of fatal cases that followed the use of caffeine, did you consult the thirteen that are reported by Doctor Witthaus when he was on the stand this morning?

A. No, sir; I did not.

Q. Did you not look at those thirteen?

A. No, sir.

Q. That is an English publication all right, is it not?

A. Yes, sir; it is, but I would not like to qualify on that because my copy of Witthaus disappeared from my library and that is the reason I did not consult it.

Q. Doctor Horatio C. Wood who was on the stand this morning—the publication he refers to is an English publication that he assisted in?

A. Yes, sir; but I distinguish between a pharmacology

and therapeutics and toxicology. He has written from the viewpoint of a pharmacologist with a special view to the treatment of disease.

Then, if I understand you, the testimony or statement you made in chief that you had investigated to find reported cases of death due to caffeine was limited to works on toxicology and not to the medical works?

A. Correct; right.

Q. And not vital statistics at all but to wroks on toxicology?

A. Correct.

Q. Then I won't go outside of that realm on cross-examination. Now, as to the two individuals that you experimented on to determine the effect of nitrogenous metabolism, those individuals were under your care all the time?

A. They were under my supervision; I did not sleep with them. Three in a bed is too many.

Q. You were separted from them fully half of the time?

A. I was with them all the time during the daylight hours. At night I was not with them.

Q. Just what they took after they left you, you do not know?

A. No, sir; but they were trustworthy.

Q. We all profress to be trustworthy, but I ask you for a positive experiment to prove something and I understand you do not know what they took after they left you?

A. No, sir.

RE-DIRECT EXAMINATION.
BY MR. SIZER:

Q. Were the thirteen cases referred to by counsel as reported by Doctor Witthaus, cases of death or permanent injury from the use of caffeine, so far as the report goes?

A. I have not read this report.

(Witness Excused.)

DR. CHARLES F. CHANDLER,

the next witness called on behalf of the claimant and intervenor, the Coca Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.
BY MR. SIZER:

Q. State your full name, residence, and occupation.

A. Charles F. Chandler; residence, New York; occupation, chemist.

Q. And what position do you now occupy?

A. Professor of Chemistry in Columbia University.

Q. Please give us your education and training as a chemist.

A. I began the study of chemistry in the New Bedford High School about 1851; in 1853 I went to the Lawrence Scientific School at Harvard and stayed a year; then I went to Germany and studied in the universities of Berlin and Guettingen and received my degree in 1856.

A. What degrees have been conferred on you by different institutions?

A. The University of Guettingen gave me the degree of Master of Arts and Doctor of Philosophy. In 1906, the same university gave me an honor diploma for fifty years of honorable service in my profession. I received the degree of Doctor of Laws from Union College, and I received the degree of Doctor of Medicine from the University of New York and the degree of Doctor of Science from Oxford University, England.

Q. What different colleges and instiutions have you been connected with?

A. I was for eight years at the head of the chemical department of Union College, and I have been for nearly 47 years at the head of the department of the Columbia University. I have also been for 44 years Professor of Chemistry in the New York College of Pharmacy and for 25 or 26 years Professor of Chemistry and Medical Jurisprudence in the College of Physicians and Surgeons at New York.

Q. Did you ever serve as chemist on any board of Health at New York City.

A. Yes, sir; I was about six years chemist of the Metropolitan Board of Health and for eleven years president of the Board of Health in New York.

Q. What scientific societies are you a member of?

A. The National Academy of Sciences, life member of the American Chemical Society, President at one time of the Paris Chemical Society, the London Chemical Society, the Berlin Chemical Society, member of the Chemical Society of Industry and past president, member of the Faraday Society and the Verein Deutcher Chemiker, of the New York Academy of Sciences, Philadelphia Academy of Science, the Washintgon Academy of Science, and several others that I do not recall.

Q. Have you ever been engaged in the service of the National government, and if so, in what capacity?

A. I was called upon on many occasions to make investigations for the National Government. President Cleveland sent for me and I spent an entire day, from ten

o'clock in the morning till ten o'clock at night with him in consultation on as to how cholera could be kept out, congress having placed in his hand $400,000 for that purpose. I was appointed by President Arthur Commissioner for the Health Exposition in London, and for the Sanitary, International Congress in Copenhagen. I was appointed by President McKinley, later by President Roosevelt, a member of the Board of Visitors for the National Observatory at Washington. I have been repeatedly called upon by the heads of departments at Washington, through the National Academy of Sciences to make investigations. The Charter of the National Academy of Sciences requires that its members shall respond whenever called upon by any department of bureau of the Government to make investigations into any scientific subjects gratuitiously, and I have served on a number of commissions, the Glucose Commission, the Denatured Alcohol Commission, and I have been called upon by the Post Office Department t etermine whether postage stamps were poisonous, and by the Navy Department to investigate the process employed for preserving paper in the navy. Several others which do not at this moment occur to me.

Q. Have you ever been connected with the administration of any food and drugs law?

A. About thirty years ago, the National Board of Trade offered prizes to the extent of a thousand dollars, divided in three prizes, for the best draft of a law to prevent the adulteration of food and drugs. I was one of the committee to award the prizes. After studying the different proposed laws, we awarded the prizes, but none of the laws were quite satisfactory, and I sat down in my library with counsel for the health department, being myself president at the time, and we drew up a law for the prevention of the adulteration of foods and drugs, hich seemed to us to be a suitable law. We placed that in the hands of the National Board of Trade and they secured its passage in some of the states, New York in particular. Being a member at that time of the State Board of Health, we undertook to enforce the law, but unfortunately at that time, the public was not prepared for the enforcement of such a law, and although we brought cases before the courts —

Mr. Miller: We object to what he has done in matters of that kind, as being foreign and irrelevant to this case.

The Court: I sustain the exception.

BY MR. SIZER:

Q. I want to ask you if you have made any study or had any experience with toxicology?

A. I have. I have studied for the purpose of lecturing on it, and I have examined several cases of alleged poisoning where I had occasion to analyze the remains of the deceased.

Q. Do you know the substance caffeine?

A. I am familiar with caffeine.

Q, Is caffeine a toxic or a poisonous substance?

A. It is not.

Q. Is caffeine, as made in beverages—does the use of it result in any serious impairment to the health of the person using it?

A. It does not.

Q. Have you had personal experience in that line?

A. I have drunk coffee very freely for sixty years. I began when I was fourteen years old and I used always two cups of coffee for breakfast, and I have always taken coffee at night with my dinner, and I have never noticed any objectionable effect.

Q. Did you make an analysis of a sample of Coca Cola syrup submitted by Doctor Hollingworth?

A. I did; that is, it was made in my laboratory under my directions.

Q. What did you do with that sample and what did you find to be the condition of it?

A. Mr. Hollingworth brought two samples of syrup, one contained caffeine and one did not, and he wanted to determine which, and I gave it to Professor Metzger, Professor of Quantitive Analysis at Columbia, and also my Assistant and I told him to extract the caffeine and bring it to me, and he did so. One sample yielded fine crystalline product, having the exact appearance of caffeine, and the other did not. I made the report to Professor Hollingworth.

Q. Did you make any definite experiment with that substance above brought you—did you determine that it was caffeine,

A. I am familiar with the appearance of caffeine as obtained in analysis, and this had the exact appearance, and that seemed to answer the question put to me, and I so reported.

Q. Did you ever make any other analysis of Coca Cola syrup in 1907?

A. Judge Candler placed in my hands—he told me to procure a sample of Coca Cola syrup, and I sent my assistant to a place in New York where they sell Coca Cola syrup and I told him not to mention my name or let anybody suspect it was for the purpose of making an analysis or examination, and I examined for cocaine and there was

none, and I tested it for caffeine and it amounted to 1.22 grains per fluid ounce.

CROSS-EXAMINATION.

BY MR. MILLER:

Q. You don't know what was in the syrup that was brought to you except as it was reported to you by your Assistant, and the fact that you looked at it?

A. That is all.

Q. I ask you if it is not true that morphine bears the same visible appearance of caffeine?

A. I never saw any morphine that looked like the substance which I believed to be caffeine in that analysis.

Q. What do you say are the distinguishing characteristics as between morphine and caffeine to the naked eye?

A. It is difficult to describe that. A person knows his two brothers apart but it is very difficult to describe them so that another person would recognize the difference.

Q. You cannot tell what the visible differences are?

A. No, sir; the eye becomes so experienced in the course of time in examination of things that you tell a thing the minute you look at it. I studied mineralogy and I can pick out fluospar and feldspar and barytes—the eye detects the color and while it is difficult to describe so that any other person without experience can tell.

Q. And so, with this long experience as a man of letters, you are unable to tell the jury what the difference is between morphine and caffeine to the naked eye?

A. Yes, sir; it would be difficult for me to describe the difference. A shepherd knows his sheep, but he could not tell anybody else so that they would know them except after long experience.

Q. He could tell a sheep from a goat?

A. Yes, sir.

Q. You were not a member of the committee of one hundred on the advancement of the national health appointed by President Roosevelt, were you?

A. No, sir; I was not.

Q. Are you engaged in teaching now?

A. I have just retired, that is, I shall be retired on the 30th of June after 46 years of service at Columbia.

Q. I will ask you if it is not a fact that your compensation depends on the outcome of this case, and that it is to be $10,000?

Mr. Sizer: I don't think that is proper.

Mr. Hirsch: Let him answer.

A. I never heard of any such a proposition.

BY MR. MILLER:

Q. Didn't you name that as your figure for which you would undertake the investigation?

A. No, sir. I never but once in my life received a fee of $10,000 and that was when I was sent to Europe for the Standard Oil Company.

Q. Who was the first to approach you to obtain the benefit of your investigation and testimony in this case as a representative of the Coca Cola Company?

A. Judge Candler came to me.

Q. Anybody else confer with you about it before you came down here relative to your experiments and investigation.

A. Yes, sir. I have met some of the experts.

Q. I am not speaking about those, but I ask you if anybody went to you to procure you to come here to testify.

A. I don't remember anybody.

Q. Nobody else except Judge Candler?

A. I don't remember of seeing any one except the experts and counsel in the case.

Q. Do you hold as a toxicologist and chemist that there is such a thing as an inherent poison?

A. I do not know what you mean by an inherent poison.

Q. You have heard the witnesses testify on the stand, Doctor Wesener and this last witness Doctor Marshall, you heard their testimony?

A. I did.

Q. You do not know what is meant by an inherent poison?

A. I do not recall that term, "inherent." If you mean by inherent poiscon a substance which is under all circumstances a poison, I do not think there is such a thing.

Q. Now, referring to the administration of caffeine in drinks, you say as it is ordinarily administered, in your opinion it does not have any deleterious effect, is that what you said, or any poisonous effect?

A. I do not remember what I said but I will say that I do not think caffeine administered in moderate quantities is in any sense deleterious or injurious.

Q. Moderate quantity depends entirely on the age and size and sex of the individual consuming the diet?

A. I think very possibly.

Q. Also on the health?

A. I think possibly.

Q. Did you make a report to the Coca Cola Company as a chemist as to a chemical analysis of Coca Cola at any time?

A. I did. At the time I investigated it for cocaine.

Q. When was that?
A. That was in 1907.
Q. Have you a copy of that letter?
A. I have one pasted in my notebook; I will read it to you.
Q. I shall be glad to have you read what you said in 1907.
A. (Reading.) "New York, Oct. 16, 1907.

"Hon. John S. Candler,
Washington, D. C.
My dear sir:

I have finished a very careful analysis of Coca Cola purchased in New York City and I find that they contain caffeine, the alkaloid of tea and coffee, 1.226 grains in each fluidounce; alcohol, a trace, such as might come from the use of flavoring extracts; cocaine, none whatever. Cane sugar, a large quantity."

(Signed.)

Q. That was the result of your chemical analysis?
A. Yes, sir.
Q. Truthfully recorded?
A. It is.
Q. That was the first investigation you made of it, in 1907?
A. It was.
Mr. Sizer: What is your age, Doctor?
The Witness: Seventy-four years old.
(Witness excused.)
The Claimant and Intervenor then read in evidence the following depositions:
Mr. Hirsch then read the following depositions:

MRS. E. M. STEVENS,
called as a witness on behalf of the claimant, was duly sworn and testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. What is your name?
A. E. M. Stevens.
Q. Where do you live?
A. 660 51st Place west.
Q. Chicago?
A. Yes, sir.
Q. What is your occupation?
A. Well, before I was married I taught school, but since then I am cooking.

Q. Where?
A At the City Hotel, 16th and State.
Q. In Chicago?
A. Yes, sir.
Q. Do you remember an occurrence about the 5th day of February?
A. I was right in it.
Q. On a Sunday?
A. Yes, sir.
Q. What happened there?
A. Do you want me to begin at the beginning and just tell it?
Q. That was on the 5th of February, 1911?
A. Yes, I know.
Q. Tell me what happened there. You need not go into the whole story.
A. Not the details?
Q. No, just tell the result.
A. Well, there was a porter and that morning he wanted a waitress to serve him his breakfast just as if he was a guest, and she refused. He came out and he said—she got his order and I asked him if that was for a guest, and he said yes. He came back and said, "No, it is for myself. I will pay for it," and this time she came out for her order and she says, "He wants me to serve it to him," and she says she would not do it.
Q. Now, who was that she?
A. This was Stella.
Q. Do you know her last name?
A. No, sir, I don't know. Never learned her last name at all. Stella was all I knew her by. And then I left the kitchen and went back in the rear. Before I left the kitchen he came out and goes to the basement, and then I left the kitchen and went back to the rear and I hadn't been out five minutes when I heard the shooting and I knew it was her. I don't know why—because I knew there was not anyone else in the kitchen except her, and I started to go out the rear door and it was locked, and then I turned to go through the kitchen and just as I turned to go through the door she came running in and him after her and he fired two shots that killed her. I saw the blaze from both barrels of the pistol.
Q. And she was shot dead?
A. No sir, she run from there clear through into the hotel lobby and the house keeper and the day clerk saw her sinking and caught her and laid her down and she died in fifteen minutes.
Q. Do you remember what you did on February 6th,

Monday, after this occurrence?

Q. Do you remember where you were?

A. I was at the inquest.

Q. Do you remember where that was?

A. That was on Wabash Avenue, but I don't remember the number, nor I don't remember the Coroner's name there, anything about the place.

Q. Do you remember near what cross street it was?

A. No sir, I don't.

Q. Do you remember seeing me there?

A. Yes, sir, I remember seeing you.

Q. Do you remember seeing this lady there?

A. Yes, sir; she was there.

Q. (The witness points to Mrs. Mary Ciombro who is asked to stand up by the counsel.)

Q. Do you remember whether or not this lady to whom you just pointed identified the body of the dead girl that day as Stefinia Porembor?

A. Yes, sir, she identified her as Stefinia and that other name, I can't tell. But then you know I didn't know her only as Stella.

Q. But she identified the same body?

A. Yes, sir; she identified the same body. I saw the body taken out of the hotel.

Q. Mrs. Stevens, what are your duties at the City Hotel?

A. Well, I am cook there. I have the care of the kitchen.

Q. And this girl Stefinia or Stella, as you knew her, was employed there?

A. Yes, sir, she was a waitress there.

Q. Now, do you know what her habits were there as to drinking tea and coffee?

A. Well, sometimes she would take a cup of tea twice or three times a day and again it would be coffee.

Q. How long was she employed there?

A. Well, she came there between October and November.

Q. 1910?

A. Yes, sir.

Q. And stayed there until she was killed?

A. Yes, sir.

Q. On the 5th of February, 1911?

A. Yes, sir.

Q. Now, how many cups of coffee or tea would you think she drank on an average a day?

A. Well, it would not average I think over five a day, both together. That is, just a rough guess.

Q. That was from —

A. From the time she would come on duty. She generally took a cup of coffee when she first came on duty. We all do that. And then when she would eat her breakfast it would be either a cup of coffee or a cup of tea, and then sometimes she would take a cup between dinner and breakfast and dinner, and sometimes she would not drink anything of the kind at dinner, and again she would.

Q. That happened daily?

A. Yes, sir; that was daily.

CROSS-EXAMINATION
BY MR. HULBERT:

Q. When did you start to work at the hotel, the City Hotel?

A. 20th of October.

Q. 1910?

A. Yes, sir.

Q. Was this girl still there at the time?

A. No sir, she was not there.

Q. When did she go to work?

A. She came there between October and November.

Q. Do you know when?

A. No sir, I don't remember the day.

Q. When was she killed?

A. Sir?

Q. When was she shot?

A. Between eight and nine Sunday morning.

Q. On Febraury 5th.

A. Yes, sir.

Q. What time of day did she go down to work as a general rule?

A. At six o'clock Sunday morning.

Q. Every day at six o'clock in the morning?

A. At six o'clock Sunday morning, and then sometimes it would be a quarter to six when she would come down, and then it would be almost six.

Q. She only worked on Sundays?

A. She worked all the time there, every day.

Q. Then she came there at six o'clock every morning?

A. Well, Sunday morning —

Q. I don't mean Sunday morning. What time did she go to work mornings?

A. A quarter to six.

Q. The first thing she did was to take a drink of coffee?

A. She would get her things off to go to work and prepare ready for the guests and then if she had time she would take a cup of coffee or a cup of tea.

Q. And you saw her every morning?

A. I saw her every morning. That was the first place she would go, to the kitchen.

Q. And do you say you saw her drink a cup of coffee every morning between October the 20th and February 5th?

A. Yes sir, a cup of coffee or tea.

Q. When next during the day would she take a cup of coffee or tea?

A. Well, sometimes it would be about between breakfast and dinner. You know she would not eat—she would eat a very light breakfast, and then she wohld have to hustle there through her work because she had quite a little work to do, and when she got through it would be between ten and eleven or about ten, and then perhaps she would take a cup of coffee or tea.

Q. That is two cups. Now, when would she drink again?

A. Perhaps she would take one at dinner, or a glass of water.

Q. You mean at noon time?

A. Yes, sir.

Q. That is three cups. When again would she drink?

A. Then again for supper she would generally take a cup of coffee or a cup of tea.

Q. That is about six o'clock in the evening?

A. Yes, sir.

Q. And altogether about four cups of coffee during the day?

A. Yes sir, between four and five. Something along there.

Q. That is all she drank of tea or coffee during the day?

A. Yes sir, that is all I knew of her drinking.

Q. Did she ever drink any other drinks, liquor of any sort during that time?

A. Well, when she first came there she would have a glass of beer, but toward the last she didn't drink that at all because I talked to her and told her that she should not do it, and if she drank it, she drank it after she went off duty, you know, and I didn't know anything about that.

Q. Are you related to her—to this Stella?

A. Me?

Q. Yes.

A. No, indeed.

Q. How old a woman was she at the time, do you know?

A. Well, she was along between eighteen and twenty-three I think. Along there somewhere. I don't know. I

never asked her age, but judging from her appearance she would be along there, about that age.

Q. Have you talked to anybody about your testimony?

A. No, sir; I have not.

Q. How did you know that you were going to be asked as to her drinking tea or coffee?

A. Well, the gentleman at the inquest asked me these questions.

Q. You have not talked to anybody since then?

A. No, sir, I have not. He was there taking notes and asked me something in regard to it, and then when I left he came, he came out then after me and told me perhaps I might be wanted again, and I give him my name and address where I was working.

Q. And you have not spoken to Mr. Hirsch or any other lawyer since then?

A. I have not seen anyone since then.

MRS. E. M. STEVENS.

Subscribed and sworn to before me this 3rd day of March 1911.

Mark A. Foote, United States Commissioner.

(SEAL)

MARY CIOMBRO,

called as a witness on behalf of the claimant, was duly sworn and testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. What is your name please?

A. Mary Ciombro.

Q. Where do you live?

A. 18th Place and Wood.

Q. Chicago, Illinois?

A. Yes, sir.

Q. Do you know Stefinia Porembor?

A. Yes, sir.

Q. Is she dead or alive?

A. She dead.

Q. When did she die?

A. 5th of February.

Q. Did you attend the inquest by the Coroner over the body of Stefinia Porembor?

A. Yes, sir.

Q. On Monday, the 6th of February?

A. Yes, sir.

Q. 1911?

A. Yes, sir.

Q. You remember where that was?

A. I could not remember that.
Q. Do you remember the name of the street?
A. No. It was on Wabash.
Q. On Wabash Avenue?
Q. Do you remember seeing me there?
A. Yes, sir.
Q. Did you identify the body laying there that day as the body of Stefinia Porembor?
A. I could not tell you that.
Q. Were you asked that day whether that was the body of Stefinia Porembor?
A. I could not tell you that.
(From this point on the witness was examined through sworn Polish interpreter.)
(Question repeated by the stenographer as follows: "Did you identify the body laying there that day as the body of Stefinia Porembor?")
A. Yes, she was notified.
A. Do you understand what identified means?
A. No.
Q. I will change the question. Were you asked at the inquest whether or not the body lying there was the body of Stefinia Porembor?
A. I could not pronounce that word to you.
Q. Was the body of Stefinia Porembor lying there on that day that the inquest was held at Wabash Avenue? Was that the body of Stefinia Porembor there at that place on Wabash Avenue when you were there on February the 6th?
A. She said—you can't get that work out of her very well.
Q. Do you remember what happened at the inquest?
A. As much as she says what happened there, she was sworn and then she saw what was happening there, what was there, everything.
Q. What questions were asked her?
A. She said they were asking what happened to her and what she drank, as much as they asked her.
Q. Was she asked whether or not that body was the body of Stefinia Porembor?
A. She don't remember anything of what happened very much because she was too excited.
Q. Did you see the body of Stefinia Porembor at that hearing?
A. Yes, sir.
Q. How old was Stefinia?
A. Twenty-one.
Q. How long have you been in America?

A. Me? Six years.
Q. How long was Stefinia in America?
A. Four.
Q. Do you know anything about the habits of Stefinia as to drinking tea or coffee?
A. She was drinking it. She was drinking coffee more than tea.
Q. Where did Stefinia live in Chicago?
A. She was there right by me.
Q. Where did she live?
A. She lived in 1834 South Wood Street.
Q. Is that where you lived?
A. Yes, sir.
Q. How long did she live with you?
A. A year.
Q. How many cups of coffee or tea would you say that Stefinia drank on an average a day while she was living there with you?
A. Two or three cups of coffee or tea.
Q. Where were you born?
A. In the old country.
Q. I know, but what old country?
A. Austria.
Q. Where was Stefinia born?
A. In Austria, too.
Q. Was she born in the same city that you were born?
A. Yes, sir.
Q. Did you know her in the old country?
A. Yes, sir.
Q. What relation are you to her?
A. Cousin.
Q. Do you know the habits of Stefinia Porembor when you were living together in the old country as to her drinking tea and coffee?
A. Coffee she drink coffee.
Q. About how many cups on an average do you think that Stefinia drank in the old country that you know of?
A. She didn't drink much coffee there.
Q. How?
A. She didn't drink much coffee there.
Q. Well, how much would you say?
A. A cup a week or two a week.

CROSS-EXAMINATION
BY MR. HULBERT:

Q. Did you work at the same place that Stefinia worked?
A. No, sir.

Q. Where do you work?
A. I ain't working now.
Q. Are you married?
A. Yes, sir.
Q. Stefinia lived at your house?
A. Yes, sir.
Q. Sleep there at night?
A. She was living in a hotel, but that last night that she got killed she was sleeping with me.
Q. That is from October 5th or from October 10th around to the time she was shot she lived at your house most of the time.
A. No, she came around once or twice a week.
Q. Only one or twice a week?
A. Yes sir. But she does not sleep by me.
Q. Did she drink any tea or coffee in your house?
A. She drinks coffee once in a while.
Q. She drank coffee one or two times a week that she came to your house?
A. Yes, sir.
Q. Now, the time that she came to your house, when was it, was it in the morning or was it at night?
A. At night.
Q. What time at night did she come?
A. About eight o'clock.
Q. Eight o'clock.
A. Yes, sir.
Q. What would she do first? Would she drink a cup of coffee as soon as she came in or not?
A. No sir, she drinks coffee, and sometimes she doesn't drink anything.
Q. Sometimes she does not drink anything?
A. No.
Q. Did she go to bed and sleep at your house or not.
A. No, just stayed there Sunday and then she was sleeping by me.
O She came there and visited you awhile and then she would go back to the hotel?
A. Yes, sir.
Q. You didn't see her at all during the day time?
A. No, sir.
Q. She was working all that time?
A. She was working?
Q. And the only time you ever saw her drink tea or coffee was the two or three times within the period of four months when she came to your house?
A. Yes, sir.
Q. In the evening for short visits?

A. Yes, sir.
Q. That is all you know about her drinking tea or coffee?
A. Yes sir, that is all.

RE-DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Did Stefinia ever work for you?
A. Yes sir, she was working by me for about four months.
Q. And during the time she was working for you did she take her meals at your house?
A. Yes, sir.
Q. Do you know whether or not during that period she drank coffee or tea?
A. She drinks coffee or tea.
Q. During the period that she was working for you how many cups of coffee or tea would she usually drink on an average a day?
A. Three or four cups of coffee or tea.

RE-CROSS EXAMINATION.
BY MR. HULBERT:

Q. When did she start to work for you?
A. Last year in February.
Q. 1910?
A. 1910.
Q. How long did she work for you?
A. Four months.
Q. What year was that in February? 1910?
A. Last year, 1910, yes sir.
Q. What kind of work?
A. Common work.
Q. Common house work?
A. Yes, sir.
Q. Cook?
A. Cook, yes sir.
Q. What were you doing while she was working there?
A. I was not doing anything.
Q. You were not runing a hotel or boarding house or anything of that sort?
A. No sir.
Q. Did you see her all day long?
A. I saw her all day long.
Q. And you saw her every time she drank tea or coffee?
A. Yes, sir.
Q. And you say on an average she would drink about

three cups of coffee or tea a day?

A. Three or four.

Q. What was she doing after she left you up to the time she went to work at the hotel?

Q. From July until October what was she doing there?

A. Working in the hotel.

Q. No, what was she doing there? She went to work in the hotel in October. What was she doing from that time on, if you know?

A. I don't know.

Q. What was she doing after she left you until she went to the City Hotel?

A. Nothing.

Q. What kind of coffee did she drink at your house, do you know? Was it strong coffee or weak?

A. It was not very strong.

Q. Not very strong?

A. No.

Q. Was it very strong tea?

A. No.

MARY CIOMBRO.

Subscribed and sworn to before me this 3rd day of March, 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

JOHN MANGOLD,

called as a witness on behalf of the claimant, was duly sworn and testified at follows:

DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. What is your name please?

A. John Mangold.

Q. Where do you live?

A. 1439 South Lawndale Avenue.

Q. Chicago?

A. Chicago.

Q. What is your occupation?

A. Police officer.

Q. What force?

A. Central Detail.

Q. Chicago, Illinois.

A. Yes, sir.

Q. Mr. Mangold, do you know William Mangold?

A. Yes, sir.

Q. What relation was he to you?

A. My son.

Q. Is he dead or alive?

A. He is dead.
Q. When did he die?
A. 13th of February.
Q. That is 1911 he died?
A. Yes, sir.
Q. Did he ever live with you?
A. Yes sir, he lived with me up until the time that he got married. It will be five years next June.
Q. How old was he when he died?
A. He was thirty years and eleven months? He would be thirty one years the 13th of this month.
Q. Do you know anything about his habits as to drinking coffee or tea?
A. While he was with me he was always drinking coffee.
Q. How long did you say he was living with you?
A. Up to the time he got married.
Q. And he has been married how many years?
A. He has been married five years next June.
Q. And how old was he when he died?
A. He was thirty years and eleven months.
Q. Up to the time when he got married, what would you say would be the fair average of number of cups of coffee or tea that he drank while he was with you?
A. Oh, probably three cups a day.
Q. Of what?
A. Of coffee.

CROSS-EXAMINATION
BY MR. HULBERT:

Q. What business was William Mangold in?
A. He was in the real estate business.
Q. Both before and after his marriage?
A. Yes, sir.
Q. How old was he when he started in that business?
A. Sixteen years old.
Q. And he worked day times?
A. Yes, sir.
Q. And you were on duty day times?
A. Yes, sir.
Q. Your wife is living?
A. Yes, sir.
Q. Up until his marriage he lived at your house?
A. Yes, sir.
Q. What time in the morning do you generally leave your house?
A. I generally leave earlier than the others. I used to leave about half past six in the morning.
Q. What time did you get home at night?

A. I got home at half past six or six.

Q. You would not see your son at all during that time from six-thirty in the morning until six-thirty at night, would you?

A. No.

Q. You would not know how many cups he drank during that period of time, would you?

A. No, only what he would drink at night.

A. I would see him drink in the morning, but of course that is all we would have, coffee in the morning and coffee in the evening.

Q. So as a matter of fact he would only drink a cup of coffee in the morning and only one at night, is that right?

A. Yes, sir. I don't know what he would drink at noon time. I suppose he would drink coffee, too.

Q. You don't know of your own knowledge?

A. No.

RE-DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. When was the first time you saw the body of your son after he died?

A. The 13th of February.

Q. Where?

A. At the morgue.

Q. What morgue?

A. County morgue.

Q. Cook County morgue?

A. Yes, sir.

Q. Were you asked to identify the body?

A. Yes, sir.

Q. And did you?

A. Yes, sir.

RE-CROSS EXAMINATION.
BY MR. HULBERT:

Q. What did your son die of?

A. I could not tell you. They claimed it was ptomaine poisoning. I don't know whether it was or not. He died very sudden on the street.

JOHN MANGOLD.

Subscribed and sworn to before me this 3rd day of March, 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

PAUL EISERMANN,

called as a witness on behalf of the claimant, was duly sworn and testified as follows:

DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. What is your name?
A. Paul Eisermann.
Q. Where do you live?
A. 2948 West 39th Street.
Q. What city?
A. Chicago.
Q. How old are you?
A. Twenty-five.
Q. Do you know Rheinholt Eisermann?
A. Yes, sir.
Q. What relation was he to you?
A. My father.
Q. Is your father dead or alive?
A. Dead.
Q. When did he die?
A. The 14th of February.
Q. What year?
A. 1911.
Q. Where did you first see him after he died?
A. County morgue.
Q. What happened then?
A. Why, they asked me to identify the body.
Q. Did you?
A. Yes, sir.
Q. As your father?
A. Yes, sir.
Q. Did you live with your father?
A. Yes, sir.
Q. How many years?
A. Since I was born.
Q. Do you know his habits as to drinking coffee and tea?
A. Yes, sir.
Q. How many cups of coffee on an average do you think that he would drink a day since you have known him?
A. Well, about five cups a day.
Q. Of what?
A. Coffee. He would drink two in the morning. At noon I don't know what he drank, and he would drink a glass of beer, I guess with dinner, and generally at supper and generally a cup before he would go to bed.
Q. Do you know whether your father had all his limbs on his body when he died.
A. They took his leg off.
Q. When?

A. Before he died. Three days before he died. I remember they took his lef off and he died on Tuesday.

Q. Do you know of what?

A. Well, poisoning set in.

Q. But he died a natural death, didn't he?

A. No, he died of injuries, so far as I know.

CROSS-EXAMINATION.

BY MR. HULBERT:

Q. Who have you talked to about this case before you came here to testify?

A. Some gentleman over to the house asked me if I would come over and give my testimony, that is all.

Q. Do you know who he was?

A. No, I do not.

Q. What did he say to you about what you were to testify?

A. He just asked me to testify how many cups of coffee my father drank and I told him just the same as I told here now.

Q. Is that man in the room now?

A. No, he is not.

Q. Who told you to testify?

A. He didn't tell me to testify. He asked me if I would testify.

Q. He asked you if you would testify?

A. Yes, if I would testify, yes sir.

Q. Did he suggest to you how many cups of coffee your father drank?

A. No, he did not.

Q. Are you married?

A. No sir.

Q. Been living with your father at this address here?

A. Yes, sir.

Q. Now, what time in the morning did your father leave the house?

A. About six o'clock.

Q. What time would you leave?

A. Well, I would leave about a quarter to six or five-thirty.

Q. Did you always have breakfast with your father?

A. Yes, sir.

Q. You always had breakfast with your father?

A. Yes, sir.

Q. And you particular pains to notice how many cups of coffee he drank?

A. Well, him and I took two cups of coffee in the morning for breakfast and two cups of coffee for supper,

and I took a cup of coffee gnerally before I would go to bed, and he would take a cup of coffee, too. We are in the habit of taking a cup of coffee in the evening before going to bed.

Q. You took particular pains during the last five or six years to see and notice how many cups of coffee your father drank?

A. Well, I didn't just take pains, but I seen the way we drink together. I generally take two cups of coffee or three cups of coffee in the morning, yes sir, and at noon I take a cup of coffee, and at night generally two cups of coffee for supper—sometimes three, and we drink a cup of coffee before we go to bed.

Q. What kind of coffee did you drink at the house?

A. Medium.

Q. Not very strong?

A. Generally use good coffee at the house, not very strong. About medium.

Q. You use cream in it?

A. He drank it black?

Q. He drank it black?

A. I used cream in mine.

Q. Altogether you would say he drank about four cups of coffee a day?

A. Well, about five cups of coffee a day.

Q. Five?

A. At least.

PAUL EISERMAN.

Subscribed and sworn to before me this 3rd day of March, 1911.

Marke A. Foote, U. S. Commissioner.

(SEAL.)

PETER PICCHI,

called as a witness on behalf of the claimant, was duly sworn and testified as follows through a sworn Italian interpreter:

DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. What is your name?

A. Peter Picchi.

Q. Where do you live?

A. Live in Peoria.

Q. Illinois?

A. Yes sir. Don't you know that?

Q. Did you know Giovan Batista Capatelli?

A. Yes, sir.

Q. How long have you known him?

A. I have known him eighteen or nineteen years.

Q. Is he dead or alive?
A. Now he is dead.
Q. When did he die?
A. He died on the 16th day of February.
Q. What year?
A. He died this year.
Q. Where?
A. In South Holland. When I saw him he was dead, but they told me he had died at South Holland, Illinois.
Q. Where did you see him after he was dead?
A. I saw him at the hospital.
It is agreed that the witness means the Cook County morgue, Cook county, Illinois.
Q. Do you know whether or not you pointed out the body of Capatelli at the County morgue?
The Interpreter: I asked him if at the time he see the body at the morgue, if they asked him if he knew this dead man, and he said that is Capatelli, he knew, because was related to him, and he identified him.
Q. What relation were you to Capatelli?
A. I married his sister.
A. We are brother-in-laws. Then he turned around and married my sister for spite.
Q. How long have you been in this country?
A. I am in the United States, it will be two years the 15th day of this coming May.
Q. Where were you born?
A. I was born in Serentino, Province of Rome, Italy.
Q Where was Capatelli born?
A. Capatelli was born at Serentino, the same place.
Q. Did you know Capatelli in the old country?
A. Yes sir.
Q. When did Capatelli come to America?
A. He came here on the 24th of March.
Q. And how old was Capatelli when he died?
A. I could not say exactly. Between thirty-four and thirty-five years.
Q. What year did Capatelli come to America in?
A. Capatelli came here last year in March. It makes a year the 24th of this month that he came to this country.
Q. Do you know the habits of Capatelli as to whether or not he drank tea of coffee?
A. You mean in Italy or here?
Q. In Italy?
A. In Italy we drink wine.
Q. Do you know whether or not Capatelli drank tea of coffee in Italy?
A. No, sir. He means he don't drink coffee. They

drink wine.

Q. Do you know whether Capatelli drank tea or coffee in Italy? Answer yes or no.

A. No, sir. When Capatelli got up mornings he used to drink wine.

Q. What did Capatelli drink in Italy?

A. All that Capatelli would drink was water and wine, that is all.

CROSS-EXAMINATION.

BY MR. HULBERT:

Q. Did Capatelli live with you in this country?

A. Yes, sir.

Q. How long did you know him in Italy?

A. I would say from eighteen to nineteen years.

Q. And during that time all he drank was wine and water?

A. When he could not get wine he drank water, and when there was wine he drank the wine. He didn't drink the water.

his
PETER × PICCHI
mark

Subscribed and sworn to before me this 3rd day of March, 1911.

MARK A. FOOTE,
U. S. Commissioner.

(Seal)

Witnesses to mark:
Bernard P. Barasa.
M. P. Griner.

PETER PICCHI,

recalled, testified as follows:

DIRECT EXAMINATION,

BY MR. HIRSCH:

Q. Do you know what Capatelli drank in America?

A. He used to dring a cup of coffee in the morning and outside of that he would drink beer or water or whatever —

CROSS-EXAMINATION.

BY MR. HULBERT:

Q. Did Capatelli live at your house in this country?

A. Yes sir, the first time we were living at Terra Cotta.

Q. How long did you live in the same house in this country?

A. Capatelli came to this country on the 24th of March.

Q. How many months did you live together in the same house in this country?

A. We lived together from the 24th of March until the 20th of May, at Terra Cotta; then I went to work for the Nortwestern, and I put in the month of June there; then from that time until November, I don't remember exactly whether it was the 21st or 20th of November last—up to that time I was with Capatelli.

Q. From November until he died?

A. He put in one month in June with the Northwestern and then he put in all the following months.

Q. July to November?

A. July to November, with Capatelli.

Q. Living in the same house from July to November?

A. Yes sir; they were living here in railroad camps out in the country.

Q. And you were working on the railroad together all that time?

A. Yes, sir.

Q. And did you eat at the same table with him all that time.

A. We were together; he would eat what I ate and I ate what he ate.

Q. And he would drink one cup of coffee in the morning there every day that you saw him?

A. He used to drink a cup of coffee every morning. I used to drink a cup of coffee too.

Q. And that is all the coffee he drank?

A. Yes, sir; he didn't drink any more coffee.

his
PETER × PICCHI
mark

Subscribed and sworn to before me this 3rd day of March, A. D., 1911.

MARK A. FOOTE,
U. S. Commissioner.

(Seal)

Witnesses to mark:
Bernard P. Barasa.
M .P. Griner.

GIOVAN BATISTA DI PALMA,
called as a witness on behalf of the claimant, was duly sworn and testified through an interpreter as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Have you been sworn?

A. Yes, sir.

Q. What is your name?

A. Giovan Batista Di Palma.

Q. Where do you live?
A. Peoria.
Q. Illinois?
A. Yes, sir.
Q. How old are you?
A. Thirty.
Q. Did you know Giovan Batista Capatelli?
A. Yes, sir.
Q. Hom long had you known him?
A. From the time we were boys.
Q. Is he dead or alive?
A. Dead.
Q. How long have you been in America?
A. I am here in the United States about nine or ten months.
Q. Did you know Capatelli in Italy?
A. Yes, sir.
Q. Where were you born, in Italy?
A. Serentino.
Q. Is that the same place Capatelli was born?
A. Yes, sir.
Q. What beverages did Capatelli drink in Italy?
A. Wine.
Q. Anything else?
A. That is all.
Q. Do you know whether or not he drank tea or coffee?
A. I know that he didn't drink tea or coffee.

CROSS EXAMINATION,

BY MR. HULBERT:

Q. Do you know of what Capatelli died?
A. No sir.
Q. Did he ever drink wine in Italy to excess?
A. He would drink abastanza. That means enough or all that was necessary for to live.
Q. But not enough to get drunk?
A. No sir.
Q. What kind of wine did he drink?
A. Wine from grapes.
Q. Do you know the name of the wine?
A. They always make wine from grapes, and they make the same wine and they don't give it any name, simply grape juice, that is all.

His
GIOVAN BATISTA × DI PALMA.
Mark.

Subscribed and sworn to before me
this 3rd day of March, 1911.
(SEAL) Mark A. Foote, U. S. Commissioner.
Witness to mark:
Bernard E. Barasa
M. F. Criner.

CUONO NUZZO,

called as a witness on behalf of the claimant, was first duly sworn, and testified through an interpreter, as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your name?
A. Cuono Nuzzo.
Q. Where do you live?
A. 1107 Vernor Park Place.
Q. How old are you?
A. 31.
Q. Do you know Pasquali La Ventura?
A. Yes sir.
Q. Is he dead or alive?
A. Dead.
Q. When did he die?
A. The 3rd of last month.
Q. Where did he die?
A. On Pope Street.
Q. How long have you known Ventura?
A. When he was born.
Q. When he was born?
A. Yes sir.
Q. How long have you been in America?
A. Six years.
Q. Where were you born?
A. I born 1880.
Q. Where were you born, in what country?
A. Italy.
Q. In what part of Italy?
A. Acera, Province of Caserta.
Q. Where was La Ventura born?
A. At Acera.
Q. The same place that you were born?
A. Yes sir.
Q. How old was La Ventura when he died?
A. 22 years old.
Q. Do you know how long Ventura was in this country?
A. Yes sir.
Q. How long?

A. I can't explain to you in English, but I wish you, Mr. Interpreter, would tell them that I—When I first came from Italy I went to work; when I came to this country this man Ventura was then living in Chicago, and I met him here; I don't know just precisely what date La Ventura arrived in this country, but I know that when I came here to Chicago some three years ago the man was here.

Q. How long did Ventura—how long did you know Ventura in Italy?

A. I know him from the time he was born.

Q. How long; how many years?

A. It was eighteen or nineteen years in Italy that I knew him there.

Q. Are you related to Ventura?

A. Yes sir.

Q. In what way?

A. His mother was my cousin.

Q Have you ever been in the County Morgue in Chicago?

A. Yes sir.

Q. When was the first time you saw La Ventura after he was dead?

A. The very day that he died.

Q. Where?

A. At the hospital.

Q. Was he at the morgue?

A. At the time I saw him I saw him at the hospital; they had not brought him to the house where they keep the dead people, that is the morgue—but I saw him that very night that he died.

Q. Did you ever see him at the morgue?

A. Yes; I saw him there.

Q. When?

A. At the night time I saw him when I went to the hospital. He was dead; the next morning I went to bring him or take him back to the house, to his home or where he had been living; and then I got him from the county morgue—from the place where they keep the dead people.

Q. Do you know whether or not an inquest was held over the body of Ventura?

A. No sir.

Q. Were you asked to identify the body of Ventura?

A. No; Ventura? Yes.

Q. Where?

A. At the hospital.

Q. Did you identify the body of Ventura at the hospital?

A. Yes, sir.

Q. Do you know the meaning of the word "inquest?"

A. I don't know what that means.

Q. What did Ventura drink in Italy?

A. Water and wine.

Q. Do you know whether he drank tea or coffee in Italy?

A. Yes; I know; because I know that he didn't drink.

Q. Did he drink tea or coffee in Italy?

A. No, sir.

Q. Is there any class of people in Italy who drink tea or coffee?

A. Yes, sir.

Q. What class?

A. The people more noble than we; the nobility he means—higher class.

Q. Are you of the same class of people who drink tea or coffee in Italy?

A. No, sir.

Q. Is Ventura?

A. No, sir.

CROSS EXAMINATION.

BY MR. HULBERT:

Q. Did you talk to anybody about your testimony before you come here?

A. No, sir.

Q. How did you happen to come here to testify?

A. I came here to say whether he drank tea or coffee; or what he did.

Q. Who asked you to come here?

A. This man (indicating Faverula.)

Q. When he asked you to come here did he tell you that you would be called upon to testify that La Ventura did not drink tea nor coffee?

A. I was told to come here to explain what he did and what he ate, and so on, and what he did.

Q. When you say you identified his body before the morgue or at the morgue, what do you mean?

A. To identify; I understand that they wanted to know from me the information about this man as to what he did and where he lived and what he ate, and what he drank and such things as that.

Q. You were not present at the time they held the inquest over his body?

A. I was not there; only at the hospital.

RE-DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. Look at the faces in this room and see whether or not you recognize anybody that you saw at the hospital?

A. This man here (indicating S. L. Davis, Deputy Coroner).

Q. Anybody else?

A. I know this man, he is a doctor; he was there (indicating Dr. W. H. Hunger).

Q. Do you remember whether or not you told these two gentlemen that you have just pointed to, Dr. Hunger, and Mr. Davis, whether or not that was the body of Pasquali La Ventura?

A. I said it to this man here (indicating Mr. Davis).

CUONO NUZZO.

Subscribed and sworn to before me, this 3rd day of March, A. D., 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

MIKE LA VENTURA,

called as a witness on behalf of the claimant, was duly cautioned and sworn and testifie through an interpreter, as follows:

DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. What is your name?

A. Mike La Ventura.

Q. Do you know Pasquali La Ventura?

A. He is my brother. I ought to know him.

Q. Is he dead or alive?

A. Now he is dead.

Q. When did he die?

A. The 3rd of February.

Q. Where do you live?

A. 1047 Polk Street.

Q. What city?

A. Here in Chicago.

Q. How long have you been in America?

A. I left Italy last year on the 26th of February.

Q. Do you know how long Ventura, your brother, had been in America?

A. He was here six years.

Q. Where were you born?

A. I was born in Acera.

Q. Italy?

A. Italy, yes sir.

Q. Where was your brother Pasquali La Ventura born?

A. In the same place.
Q. How old was he when he died?
A. Twenty-two years.
Q. What did your brother La Ventura drink in Italy?
A. In our condition of life we drink nothing but wine or water.
Q. What do you mean by that; by your condition of life?
A. That is of the poorer class of Italians, the peasantry and we cannot get those things.
Q. Do you know what La Ventura drank in Italy?
A. He would drink simply wine and water.
Q. Do you know whether or not he ever drank tea or coffee?
A. He never used tea or coffee in Italy.
Q. Do you know whether or not Ventura ever used tea or coffee in Italy?
A. No; he never used it.
Q. When was the first time that you saw the body of your brother after he was killed?
A. I only saw him the last day and that was the day—I saw him on the day that they brought him to the burying ground; the last day when he was in his coffin.
Q. Was that the first time that you had seen him after he was killed?
A. That was the only time—the only time I saw him after.
Q. Is there any class of people in Italy who do drink coffee or tea?
A. Yes; there are. They are the people of the higher—the gentlemen or the gentry and the higher class of people in Italy.
Q. Are you of that class?
A. No.
Q. Was your brother Pasquali La Ventura, who is dead?
A. No, sir.

CROSS EXAMINATION

BY MR. HULBERT:

Q. Did your brother ever drink tea or coffee in this country?
A. Chicago; he used to drink some—he doesn't answer just what it was he drank.
Q. Answer just what he drank?
A. He drank some—the way he puts it about once a week.
Q. Did he ever drink any coffee in Chicago?

A. Yes, sir; he used to drink it sometimes when he was here.

Q. How early in life did he begin to drink wine and water in Italy?

A. Along about ten years old.

Q. Did he ever drink to excess?

A. He never drank to excess; he drank every now and then.

LA VENTURA MIKE.

Subscribed and sworn to before me, this 3rd day of March, A. D., 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

PASQUALI DI ORIO,

called as a witness on behalf of the claimant, was first duly sworn, and testified as follows:

DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. What is your name?

A. Pasquali Di Orio.

Q. Where do you live?

A. 1047 West Polk Street.

Q. Chicago?

A. Yes, sir.

Q. Did you know Pasquali La Ventura?

A. Yes, sir. Certainly I know him.

Q. Do you know where he lived in Chicago?

A. He lived in my home.

Q. How long did he live there?

A. Two years.

Q. Do you know what Pasquali La Venutra drank during the time he was living at your house?

A. Sometimes he drank a glass of beer and sometimes he took a cup of coffee every week.

Q. No more?

A. No; that is all I know.

Q. Anything else did he drink?

A. That is all he drank.

CROSS EXAMINATION
BY MR. HULBERT:

Q. Did you eat your meals with him all that time, those two years?

A. I eat all the time with him.

Q. Every morning and every night.

A. All the morning and every night.

Q. And you had beer in your house?

A. Buy it downstairs.
Q. Bring it into your house?
A. Bring it into the house by the pail.
Q. In a pail?
A. Yes, sir.
Q. What kind of coffee did you drink?
A. I don't know what kind of coffee that was, he bought coffee anyway.
Q. You know how much he paid a pound for the coffee?
A. My brother bought coffee.
Q. You don't know, do you, how much he paid?
A. I don't know.
Q. Did you drink coffee yourself?
A. No, sir.
Q. Do you know whether or not the coffee he drank was strong or weak?
A. O, not very strong.
Q. Not very strong?
A. No.
Q. Did he ever drink any tea?
A. No tea at all.
Q. He never drank tea?
A. No.
Q. And he never drank more than one cup of coffee a week?
A. A week, sometime; sometimes he didn't drink at all.
Q. Sometimes he would go two or three weeks without drinking any coffee at all?
A. Yes, sir.
Q. And sometimes he would go pretty near a month without drinking coffee at all?
A. Sometimes.

PASQUALI DI ORIO.

Subscribed and sworn to before me, this 3rd day of March, A. D., 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

JIM DI ORIO,

called as a witness on behalf of the claimant, was duly sworn and testified as follows:

DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. Where do you live?
A. 3047 Polk Street.
Q. In what city is Polk Street.
A. Chicago.

Q. How old are you?
A. 36 years.
Q. How long have you been in this country?
A. I am in this country six years. Four years in New York and two years in Chicago.
Q. Where were you born?
A. Acera, Italy.
Q. Did you know Pasquali La Ventura?
A. I know him from this country. I didn't know him at all in Italy.
Q. That is all.
(No cross examination.)

DR. WARREN H. HUNTER,
called as a witness on behalf of the claimant, was duly sworn and testified as follows.

DIRECT EXAMINATION.
BY MR. HIRSCH:

Q. What is your name?
A. Warren H. Hunter.
Q. What is your occupation?
A. Physician.
Q. Do you do any work outside of a general character?
A. I am the Coroner's physician.
Q. Do you hold any other office—salaried office?
A. No.
Q. Are you a deputy coroner?
A. Yes, sir.
Q. Doctor, what are your duties as deputy coroner and coroner's physician?
A. I examine all bodies to ascertain the cause of death.
Q. I will ask you whether or not you held a post mortem examination over the body of Stefinia Porembor at 1722 Wabash Avenue, Chicago?
A. Yes, sir.
Q. Do you remember when?
A. I will have to refer to minutes to refresh my recollection. It was on Sunday. I don't know the date. (Referring to memoranda.)
Q. To what minutes are you referring?
A. I am referring to the Coroner's minutes and mine. That is my own minutes. I can state in a general way as to the cause of death without referring to them, as a matter of fact. I haven't got my statement of fact here for some reason or other. It should be here.
Q. Do you remember whether or not it was in Febru-

ary?

A. Yes, sir; it was in February.

Q. Do you remember whether it was in the early part or the latter part of February?

A. It was in the early part of February.

Q. Was any one present when you held that post mortem examination?

A. Yes, sir.

Q. Who?

A. Doctor Le Court.

Q. What are his initials?

A. B. R.

Q. Where does he live, what city?

A. Chicago, Illinois.

Q. Is he a practising physician?

A. No.

Q. What does he do?

A. He is associated with the chair of pathology in Rush Medical College.

Q. What was the cause of death of Stefinia Porembor?

A. A gun shot wound of the body.

Q. Doctor, in the course of your duties as Coroner's physician, do you remember whether or not you held a post mortem examination over the body of Giovan Batista Capatelli?

A. Yes, sir.

Q. Where?

A. County morgue.

Q. Do you remember what month that was in?

A. February, I believe.

Q. Do you remember whether or not it was since January 1st, 1911?

A. Yes, sir.

Q. Well, was it?

A. It was, yes, sir.

Q. Was anybody else there when you held this post mortem examination?

A. Yes, sir.

Q. Who?

A. Mr. Davis, the deputy coroner, Doctor Hektoen and Doctor Le Count.

Q. Who is Doctor Hektoen, what are his initials?

A. Doctor Ludwig Hektoen.

Q. Is he a practicing physician?

A. No, sir.

Q. What does he do?

A. He is head of the pathological department of the Rush Medical College.

Q. Do you remember the cause of death of Capatelli?
A. The cause of death that I gave in my statement was shock and hemorrhage due to external violence. I don't recollect whether he was shot or stabbed. It was one or the other.
Q. Now, Doctor, in carrying out your duties as coroner's physician, did you hold a post mortem examination over the body of Pasquali La Ventura?
A. Yes, sir.
Q. Was that since January 1st, 1911?
A. Yes, sir.
Q. Was any one present when you made that examination?
A. Yes, sir.
Q. Who?
A. Mr. Davis, Doctor Hektoen and Doctor Le Count.
Q. Where does Doctor Hektoen live?
A. He is in —
Q. I mean what city?
A. Chicago, Illinois.
Q. The Doctor Hektoen and Doctor Le Count that you have just referred to are they the same gentlemen that you have referred to here before?
A. Yes, sir.
Q. Do you remember the cause of death of Ventura?
A. That was shock and hemorrhage due to external violence.
Q. Now, Doctor, I will ask you whether or not in carrying out your duties as coroner's physician, whether or not you held the post mortem examination over the body of Dan Cummings?
A. Yes, sir.
Q. Do you remember when that was held, about the time?
A. That was before January 1st. I don't recall the date.
Q. Was it before September, 1910?
A. It was along in there some place.
Q. Was anyone present when you held that examination?
Q. Who?
A. Mr. Davis and Doctor Le Count and myself.
Q. It is the same Doctor Le Count that you referred to heretofore?
A. Yes, sir.
Q. What was the cause of death of Dan Cummings?
A. Shock and hemorrhage following gun shot wound in the body.

Q. In the line of your duties, as coroner's physician, did you hold a post mortem examination over the body of Rheinholt Eisermann?

A. Yes, sir.

Q. Do you remember about when?

A. No, I will have to refresh my memory on that. It was about —

Q. Was it since January 1st, 1911?

A. Yes, sir.

Q. Where did you hold that post mortem?

A. County morgue.

Q. Was any one present when you held that post?

A. Yes, sir.

Q. Who?

A. Mr. Davis and Doctor Hektoen and Doctor Le Count.

Q. Are these the same gentlement that you have heretofore referred to?

A. Yes, sir.

Q. I will ask you, Doctor, whether or not in carrying on your duty as coroner's physician, you held a post mortem examination over the body of William Mangold?

A. Yes, sir.

Q. Was any one present besides yourself?

A. Yes, sir.

Q. Who was it?

A. Mr. Davis, Doctor Hektoen, Doctor Le Count.

Q. These are the same gentlemen that you have heretofore referred to?

A. Yes, sir.

CROSS EXAMINATION
BY MR. HULBERT:

Q. Doctor, when you made the post mortem examination of the body of Stefinia Porembor, what did you do?

A. Opened the head and all the cavities of the body.

Q. Where was she shot? Where did the bullet enter her body?

A. I will have to refer to the notes (referring to memoranda.)

Q. Where was she shot?

A. I cannot give you the exact locality of the bullet wound in this case, because my notes have not been incorporated here in the inquest. My recollection is that she was shot through the heart?

Q. Why did you open the head?

A. It is a regular proceduré in all murder cases. It makes a complete post mortem.

Q. Are you under subpœna to testify in this case at a District Court in Chattanooga?

A. No, sir.

Q. What did you find in her head with reference to the structure?

A. A normal brain.

Q. A normal brain and in good condition?

A. Yes, sir.

Q. And with reference to her heart as to structure, what did you find?

A. Normal.

Q. Any degeneration?

A. None that I can recall.

Q. What other organs of her body did you open?

A. All of them.

Q. Did you find any symptoms of degeneration in her stomach?

A. Not that I can recall, no.

Q. There might have been, however?

A. I don't believe so.

Q. Did you find any symptoms of degeneration in any of the organs of her body that you can recall at this time?

A. No, I cannot recall those details without my notes.

Q. But there might have been without your being able to recall it?

A. Possibly.

Q. And without your notes being able to show that?

A. Well —

Q. In other words, your post mortem is not done for that purpose, to find out whether there is any structural degeneration or not, is that right?

A. Oh, no. It is done for that purpose, as well.

Q. I notice from your direct examination that Doctors Le Count and Hektoen were present at all of these post mortem examinations about which you testified, Doctor Hektoen being absent from only one. How does it happen that these parties were present at each one of these examinations, do you know?

A. They came at my request.

Q. Did you know before you notified them that there was something about these bodies that would be useful in this case?

A. Not particularly in this case. We do it quite frequently. We are all associated together in the same school.

Q. Well, at the time that you were holding these inquests, were you and the other two doctors, Doctor Hektoen and Doctor Le Count, making particular search to

find out as to whether or not there was any structural degeneration of these bodies?

A. Yes, sir.

Q. Or was it a general inquest?

A. A general, careful inquest

Q. But not directly to that particular phase of the matter?

A. It was directed to find out any degenerations whatever.

Q. Well, as an ordinary thing, do you examine, after a person is shown to have died from a gun shot, do you examine all the other organs of the body to find out whether or not there is structural degeneration of those other organs?

A. Yes, sir.

Q. You are not satisfied with the evidence of death from a gun shot wound, but you open all the other organs of the body for all other purposes, is that right?

A. The mere fact that an individual is shot is not accepted in a criminal court as sufficient evidence of death, even if it had penetrated a vital organ.

Q. Well, I know that, and for that reason you go through all the other organs?

A. Always.

Q. And did you find structural degeneration in the body of Capatelli?

A. Capatelli's organs are being run through a miscroscopical process now as to whether there are any structural changes.

Q. For what purpose?

A. For my own satisfaction.

Q. Has anybody asked you to do that with reference to this particular case?

A. Not particularly, no.

Q. Well, who has spoken to you about that?

A. Mr. Hirsch.

Q. And you are looking for that particular degeneration for what purpose?

A. Well, I say, we were looking for that particular purpose. We were looking to see what we could find.

Q. And that information which you are seeking is not for the Cook County records of the State of Illinois, but that is a matter of opinion, is that right?

A. That is for my own personal use.

Q. And also to inform you so that you may testify in the particular case some other day?

A. To use as I see fit.

Q. Now, did you find any particular degeneration of

the body of this La Ventura?

A. The same answer in regard to the previous case would have to be made, because those specimens are going through.

Q. All those specimens both of these two cases?

A. Yes, sir.

Q. And all your answers as to both bodies would be the same?

A. You might make it in regard to these five or six.

Q. As far as the post mortem examinations are concerned and the records for the coroner of Cook County, your examination is complete and your report is in, is that right?

A. Yes, sir.

Q. Were those bodies buried before you took these samples for miscroscopical examination?

A. Oh, no.

Q. You took them at the time you made the inquest?

A. Yes, sir.

Q. And why did you take them at that time?

A. For my own personal benefit.

Q. Do you do that in every case?

A. When I see fit.

Q. But at that time had you been requested by any one to take these samples so that you could post yourself upon this particular case?

A. No.

Q. Now, as to the body of Dan Cummings, what did you find in his body as to structural degeneration?

A. That comes under the same category.

Q. Same category?

A. Yes, sir.

Q. And the body of Mr. Eisermann?

A. Same thing.

Q. And Mangold?

A. Same thing.

Q. And the samples of their bodies are not being put through a miscroscopical examination?

A. Yes, sir.

Q. Were these bodies turned over to their relatives?

A. Yes, sir.

Q. Were the samples taken by you before or after that time?

A. Before they were turned over.

Q. Doctor, when you make an examination of the organs of an individual, can you ordinarily tell from that examination whether or not that particular individual has been a user of intoxicating liquors?

A. Frequently you can.
Q. But not invariably?
A. No.
Q. And could you tell whether or not he was a user of coffee, for instance?
A. You mean for a microscopical examination?
Q. Yes.
A. Simply looking at it?
Q. Yes.
A. You might and might not.
Q. But you can't be sure of that from your examination?
A. No.
Q. From a post mortem examination which you made can you tell whether or not the individual was a user of coffee?
A. From the ordinary post mortem, I should say no.
Q. Have you completed your microscopical examination of the body of any of these people that you mentioned?
A. No.
Q. And from the examination which you have so far made are you able to state whether or not, from your examination alone, those people were or were not users of coffee?
A. I don't know anything about it.
Q. Are you as a general rule able to tell from a general post mortem examination as to whether or not the person whose body you are examining was a user of tea?
A. No.
Q. And are you able to state or are you able to tell whether or not from a microscopical examination such as you are making in these cases, whether or not the body of a person you are examining showed that the individual had used tea?
A. No, that is a pretty general question, you know.
Q. Well, then, you mean there are times when you can't tell if an individual has been a user of tea, or you mean you cannot from a structural examination?
A. Depending entirely on the quantity that they might use, yes, sir.
Q. Have you found from your examination as to whether or not this Porembor woman ever used tea or coffee?
A. Those organs are in the same process.
Q. Your examination is not complete?
A. No.
Q. Is it complete in any of those cases?
A. No, sir.

Q. Not at this time?
A. No, sir.

RE-DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. Doctor, have you been requested to go to Chattanooga to testify in this case?
A. No, sir.
Q. Do you expect to go?
A. No.

WARREN H. HUNTER, M. D.

Subscribed and sworn to before me, this 3rd day of March, 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

It is agreed that this testimony is taken under the general stipulation which counsel for the Government and the claimant have heretofore made and that objections to the admissibility of any testimony may be made at the trial concerning its relevancy, materiality and competency and general admissibility excepting as to leading or form of question.

It is further understood that counsel for the Government has not had an opportunity to interview any of the witnesses offered by the claimant, except Doctor Warren H. Hunter, at the taking of these depositions, although counsel for the Government has made a request upon Mr. Milton M. Hirsch for the addresses of these witnesses prior to the taking of these depositions.

It is also understood that Mr. Hirsch offered to outline to counsel for the Government the nature of the testimony, and that the counsel did not take advantage of Mr. Hirsch's offer to confer with him.

It is further understood that Mr. Hirsch did not know the names of at least two of his witnesses until last night after ten o'clock, to wit; Mike La Ventura and Pasquali Di Orio.

The further taking of testimony herein is conducted for the taking of the testimony of Mrs. Cummings.

March 7th, 1911., 10:15 o'clock A. M.

Parties met before Commissioner Foote pursuant to adjournment and agreement. Present as before.

MRS. SUSAN CUMMINGS,

produced as a witness on behalf of the claimant, was duly sworn and testified as follows:

DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. What is your name?
A. Mrs. Susan Cummings.
Q. Where do you live?
A. 1015 Olive Street.
Q. Chicago?
A. Illinois.
Q. How long have you lived in Chicago, Mrs. Cummings?
A. About eighteen years.
Q. Did you know Dan Cummings?
A. Yes, sir.
Q. Is he dead or alive?
A. Dead.
Q. Was he any relation to you?
A. My husband.
Q. When did he die?
A. 17th day of August.
Q. What year?
A. 1910.
Q. Where was he employed?
A. Cook County hospital.
Q. Mrs. Cummings, did you know the habits of your husband Dan Cummings as to drinking coffee and tea?
A. Yes, sir.
Q. How long have you been married?
A. 12 years the fourth of July last.
Q. All the time to Dan Cummings who is dead?
A. Yes, sir.
Q. Will you state what were his habits as to drinking coffee and tea during the time that you were married?
A. Well, each morning he had a cup of coffee for his breakfast and at night he usually had a cup of tea.
Q. And that took place during the entire time you were married?
A. Yes, sir; unless on rare occasions that he would not be home, but that was very rare.
Q. Mrs. Cummings, do you know the cause of his death?
A. Yes, sir.
Q. What was it?
A. He was shot.
Q. What was the condition of his health before he died —before he was shot?
A. Perfect, to my knowledge.

CROSS EXAMINATION
BY MR. HULBERT:

Q. He never drank more than one cup of coffee in the morning?

A. Very seldom. Now, I limited it to the —

Q. And one cup at night?

A. Very seldom. On very rare occasions he might take one cup more, but I limited it to the one because I am sure of the one.

Q. And that habit extended over the twelve years of your married life?

A. Yes, sir.

Q. What kind of coffee was it, do you know?

A. Well I never paid very much attention because he would bring it from down town. He was down town to his business. His business would take him down town.

Q. He ordered the coffee?

A. He ordered the coffee, yes sir, and had it sent home.

Q. Do you know whether the coffee was strong or weak?

A. Well, he liked it pretty strong—medium.

Q. Medium?

A. Yes sir —

Q. And the tea?

A. Same way.

Q. Was it black or green tea?

A. Green tea.

Q. And he drank it medium?

A. Yes, sir.

SUSAN CUMMINGS.

Subscribed and sworn to before me this 7th day of March, 1911.

Mark A. Foote, U. S. Commissioner.

(SEAL.)

Whereupon, at 2 o'clock P. M., Court adjourned until Tuesday morning, March 28th, 1911, at 9 o'clock.

Chattanooga, Tennessee,
Tuesday, March 28, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances: Same as before.

CLAIMANT'S EVIDENCE CONTINUED.

The Court: My attention has been called to the fact that this is Election Day in the City of Chattanooga; counsel on both sides have mentioned the matter to me and have

stated a number of the jurors are anxious for an earlier adjournment in order that they may take part in the election, and other persons who were summoned as witnesses. I think it is entirely proper that every good citizen should have an opportunity to express his sentiments and the Court will therefore adjourn at twelve-thirty o'clock today. We will hold one continuous session.

Mr. Miller: I would like to have the copy that I was to be furnished with. I would like to inquire if you have that copy for me.

Mr. Sizer: I suppose the paper you refer to is the exhibit to Doctor Vaughan's testimony.

Mr. Miller: In part.

Mr. Sizer: Doctor Vaughan was asked on his cross-examination to file a list of authorities which recommended the use of caffeine-containing beverages as articles of diet. He has prepared that list and we desire to file it as an exhibit to his testimony and read it into the record.

The Court: Very well.

Mr. Sizer: The list includes the following authorities:

Bunge's Physiological Chemistry.

Sherman's Chemistry of Food and Nutrition. See especially page 212.

Chittenden on the Nutrition of Man.

Hewitt. Coffee, Its History, Cultivation and Uses.

Hutchinson on Foods.

Pavy. Foods and Dietetics.

Chevallier. French Annals of Hygiene, Vol. 17, page 1.

Schutze on Coffee, Tea and Chocolate, German Quarterly of Legal Medicine, Vol. 17, page 188.

Mr. Miller: As this is the first time that we have had that list and Doctor Vaughn is still here, I would like to have an opportunity of enjoying the same courtesy that was granted to opposite counsel. I do not know that they will grant it — we would like to take these authorities after adjournment and look them over and if there is anything that we desire to recall Doctor Vaughan in regard to we will wish to do that.

The Court: You may have time to look the list over. I am satisfied counsel will agree to that.

Mr. Sizer: That will be all right.

Mr. Miller: On pages 1887 and 1888 on yesterday we note that Doctor Vaughan was asked this question, as the stenographer reports it, and while no stenographer, perhaps, is perfectly accurate I think the ones we have here are as nearly perfect as any that I have ever seen. This report reads as follows: "Is caffeine, as made in beverages" — is the way it is reported — "does the use of it re-

sult in any serious impairment to the health of the person using it"?

His answer was: "It does not."

Mr. Sizer: Well, that word there may be wrong ——

Mr. Miller: As Mr. Sizer suggests, it may be wrong — but I move to exclude it because it calls for a conclusion pure and simple, without stating the facts ——

The Court: Is the Doctor still here? If he is still here I will sustain the motion, but if he is gone I will overrule the motion on the ground that it comes too late and that there were no objections made to it at the time.

Mr. Miller: I believe it is conceded that as it is written here it is not correct.

The Court: It may be corrected if it is not correct.

Mr. Sizer: He used the word "made" instead of "found."

The Court: That may be changed.

Mr. Miller: I do not agree to any change in it.

Mr. Sizer: It may remain as it is. I do not insist on any change.

Mr. Miller: That is all for the present.

The Court: We will proceed with the case on trial. I have examined the articles referred to in the cross-examination of Doctor Wesener, which were handed to me, one article by Doctor William Bullard in Volume 114 of the Boston Medical and Surgical Journal, on page 314, and the other article by Doctor William M. Lesynsky in Volume No. 59 of the Medical Record at page 4; and I am of the opinion that neither of those articles contain a record of any cases of poison or serious or permanent injury from caffeine within the scope of the questions put to that witness on direct examination. Doctor Bullard's article relates to tea and without any attempt to differentiate between the effects of caffeine or any other ingredient of tea and does not refer to caffeine. The article by Doctor Lesynsky refers to coffee, without any differentiation as to the effects of caffeine. Neither of the articles contain, in my opinion, records of cases of poisoning or injury from caffeine in the sense that the question was asked on direct examination and therefore I exclude them from the cross-examination.

Mr. Miller: Well, we wish to note an exception and ask that the articles may be made a part of the record.

The Court: The record may show the articles were offered and excluded.

Mr. Miller: We wish to call Doctor Marshall, if your Honor please, as to one statement he made on yesterday which I had no means of testing him in reference to.

Mr. Sizer: All right, but Doctor Marshall does not seem to be here; he has not come in yet.

Mr. Miller: Well, when he comes we can call him.

DR. E. R. LE COUNT,

the next witness called on behalf of the Claimant and Intervenor, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Please state your name and place of residence.

A. E. R. Le Count; Chicago.

Q. What is your occupation?

A. Physician and teacher.

Q. Teacher of what?

A. Teacher of Pathology in Rush Medical College.

Q. How long have you been so engaged?

A. Nearly twenty years.

Q. Where did you receive your technical education?

A. At that institution, and I had various courses — post-graduate work — at John Hopkins Medical School and several places in Europe. I studied in Berlin one time for nine months. On another occasion I spent a summer in Paris working in the Pasteur Institute.

Q. To what branch of medicine have you given especial attention?

A. Pathology.

Q. What is pathology?

A. Pathology is that part of medicine which has to do with the alterations caused by death and the way in which those alterations were brought about?

Q. Have you written any works on pathology?

A. No, sir, I have not.

Q. How many post-mortem examinations have you made?

A. Several thousand.

Q. What is the object of a post-mortem examination?

A. A post-mortem examination is made to study the changes that are caused by disease and to determine what was the cause of death.

Q. Are you familiar with the appearance of animals ordinarily used in laboratories, both in health and in disease?

A. Fairly so.

Q. Have you in your examination of human bodies after death become acquainted with the changes of structure due to the use of coffee or other caffeine-containing beverages?

A. No, sir.

Q. You heard the depositions read yesterday — the testimony of certain people in Chicago?

A. Yes, sir.

Q. Did you make an examination of these bodies?

A. Yes, sir.

Q. State the nature of your examination and what was the result.

A. I examined all of the organs in the bodies in question. In five of the six cases a microscopical examination was made of the important organs and I was unable to find any alteration that I could attribute to tea and coffee drinking habits of those people who used such beverages.

Q. In making examinations and experiments with animals in the laboratory, I wish you would describe what is necessary with regard to control, and so forth.

A. In all sorts of experiments, not only those which have to do with animals but the studies which have to do with human disease, it is necessary to have what we call a control. That is very easily obtained in the case of animals but in the case of human beings it is more difficult. Still, when it is possible, a control should be secured for the problems that involve human disease just the same as is done with animals.

In the case of controls in connection with animal experiments, the animal should be about the same weight, about the same age, and should be handled to the same degree and fed at the same time. The animal to be experimented on should have the experiment performed on it and the control animal should have everything else possible done to it except that particular test which it is desired to try out and when the animal experimented on is to be killed, or when the experiment reaches conclusions, the examinations then made of the animal experimented upon and the control animal, should be carried out quite identically.

Q. Is the purpose of the control animal to furnish a normal standard by which you can determine the effects of any given substance?

A. Yes, sir; that is the object of it. It is the primal proof that is wanted in all sorts of scientific work.

Q. Have you read the case referred to as the Zenetz case?

A. I have.

Q. From the point of view of pathology, can you say, and if not, why not — that this case resulted in death from taking caffeine?

A. In determining or demonstrating that death is due to caffeine in any given instance, — in the first place it

should be demonstrated that caffeine was taken and to demonstrate that it may be necessary to make two chemical examinations, one of the material taken and the other a chemical examination of the organs of the body involved of the individual who presumably has been poisoned; and the third examination is very necessary. That has to do with excluding all other causes of death. That is usually made by post-mortem examination, that is done carefully and thoroughly. Such methods as I have outlined are very necessary in medico-legal work where it is desired to establish in a legal way that death was brought about by a particular poison.

Mr. Miller: I did not hear that last portion of the answer.

(The last part of the answer was read, as follows: "Such methods as I have outlined are very necessary in medico-legal work where it is desired to establish in a legal way that death was brought about by a particular poison.")

Mr. Miller: If it is conceded that medico-legal work is a legitimate part of this controversy, I do not object to that; otherwise, I move to exclude it.

The Court: The motion is sustained as to what was read.

BY MR. HIRSCH:

Q. Taking up the Zenetz case, what was done and what should have been done to determine the cause of death?

Mr. Miller: I object to that.

Mr. Hirsch: I want to take up the Zenetz case in detail from the point of view of pathology.

Mr. Miller: I object to the form of that question.

The Court: What is the objection to the form of the question?

Mr. Miller: The objection is that it calls purely for a conclusion as to whether the other man did it in a proper way and I submit that is not competent.

The Court: You may ask this witness what this case shows from the standpoint of a pathologist.

BY MR. HIRSCH:

Q. What does this Zenetz case show from a pathologist's point of view?

A. It does not show anything, practically, from a pathological standpoint, because there is mention solely of this: That the heart was examined and found to be hard and to resist cutting with a knife. That is all the report shows that has to do with the gross changes in the body.

Q. Could that be due to caffeine or could it be due to a condition of the heart?

Mr. Miller: Do you express yourself as being competent to speak on that as to the effect this drug would produce physiologically on the heart?

The Witness: With regard to the heart being hard and difficult to cut with a knife?

Mr. Miller: Or any other physiological action.

The Witness: Yes, sir.

Mr. Miller: That is all I wanted to know.

The Witness: I know of no action of the human heart with any drug that would render it difficult to cut with a sharp knife.

BY MR. HIRSCH:

Q. What conditions might have caused it?

A. One condition that might have made the heart difficult to cut with a sharp knife would be the deposit of lime salt that sometimes occurs about the heart in a sac that the heart is contained in. Another condition that might have caused this record, or might have caused the heart to be difficult to cut with a knife, would be the presence of considerable amount of scar tissues in the heart's muscle, a form of disease known as fibrous myocarditis.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. How long was it after death, or do you know how long it was after death of these five persons on whom you held the post-mortems in Chicago before you held the post-mortem, or did you know in the first place how long it was?

A. In one instance I know that the time was relatively short because the body was still warm — body heat was present abundantly and markedly present.

Q. As to the others you do not know?

A. I only know as to the others by hearsay.

Q. Were you assisted in these post-mortem examinations by anybody else?

A. I was present at the examinations as they were conducted by Doctor Hunter, the Coroner's physician, and given opportunity to examine everything I wanted to examine during the course of that examination.

Q. You were apprised in advance of the causes that produced the death of these parties?

A. In one instance — in most instances, the causes were very apparent, like gunshot wound of the head, gunshot wound of the abdomen, skull fracture, etc. I have nothing else to answer on this; that is the complete answer.

Q. Was there a single case in which you were not apprised in advance of the cause of death or where it was not readily apparent from the exterior of the person?

A. There was one instance where the only statement that I know of — and this was also hearsay — was that the individual died suddenly in apparent health while about his usual occupation.

Q. How long is heat retained in the body after death?

A. It depends on a good many factors. The mode of death, whether due to violence or whether it is due to disease, and the place where the body is kept and the time of the year, and such things as that.

Q. Of course, the object of that question is to ascertain how long this particular body that you say there was some heat or warmth in that you held the post-mortem on had been exposed or the length of time that had expired after death, and I am trying to get at that fact. Now, when you say a relatively short time, I want to know what you know as to these exterior conditions; that is, as to where it had been kept and under what circumstances death occurred, and so forth, what it is that enables you to express that opinion.

A. In this particular instance I refer to, the woman was shot about eight o'clock and the examination was made about noon of the same day, Sunday morning, February 5.

Q. What did you do in making that examination?

A. The body was examined in the usual way. The brain was examined, the heart, the lungs and the alimentary canal, and the thyroid gland.

Q. Now, when was the brain removed — how long after you began the post-mortem?

A. The brain was removed the first thing.

Q. What was done with it then?

A. It was looked at and examined.

Q. What did you do with it next?

A. I cut out some pieces for microscopical examination.

Q. What did you do with those?

A. Examined them microscopically.

Q. You did not do that while you were examining the other organs?

A. No, sir. It went through the usual technical procedures which have to do with the preparation of thin sections for microscopical examination.

Q. What I want to know is this: When you took the brain out you examined certain other organs and I want to know what was done with that brain while you were making the examination of the other organs.

A. I do not remember whether it was laid to one side or put back in the body, or what was done with it.

Q. When was it that you completed your examination of the other organs?

A. Perhaps an hour or an hour and a half after the examination was begun.

Q. Where was this post mortem held?

A. The particular post mortem examination was held on Wabash avenue near 16th street.

Q. After you were prepared to deal with this brain from the standpoint of a microscopic examination, where did you take the brain to?

A. The brain was left in the body.

Q. You just took it out and then put it back into the body?

A. Yes, sir; the brain was left and buried with the body, so far as I know.

Q. Then this brain, or a portion of it, was cut away at the same time for microscopical examination, where did you take that?

A. I took that to my laboratory.

Q. How long after you began this post mortem was it until you examined that brain microscopically?

A. Oh, I don't remember. I was at that time examining a considerable number of similar things, brains and other organs, it might have been a week or it might have been two weeks.

Q. Now, what was the test to which you subjected that brain, I would like to have you give it in detail.

A. The sections were made by what is known as the cellodine method of the brain as well as all other organs, and for this purpose the pieces of the brain were fixed — fixed — that means that the tissue has to be cooked, something like you cook an egg, only the cooking is done with a fluid that coagulates the tissue and makes it hard. Of the fluids that were used for this purpose, there were strong alcohol, 96 or 98 per cent., perhaps absolute alcohol, and what is know as Zenker's Fluid. Zenker's Fluid contains sublimate of mercury and bichlormate of potassium, and a little sedium bisulphate and glacial acetic acid, a strong acetic acid. These fluids, the alcohol and Zenker's Fluid, are commonly used in all laboratories all over the world for these purposes. These tissues, fixed in this way, were infiltrated with a substance making them hard.

Q. What was that substance?

A. In one instance — are you speaking ——

Q. I am speaking of this brain.

A. You say of the one examination of the brain?

Q. Yes, of this particular brain.

A. The brain was examined for Nissl's Bodies by the technique laid down by Nissl, and other methods.

Q. I am trying to ascertain what you did in that con-

nection.

A. The brain was fixed in strong alcohol, and then cut without imbedding and strained with alkaline methlene blue stain for Nissl's Bodies, as I have already stated, and then it was examined.

Q. Under the microscope?

A. Yes, sir.

Q. That was after all that had been done?

A. Yes, sir; all of that always would have to be done in order to develop the particular information that is desired when one looks for Nissl's Bodies.

Q. In this instance, that was all done?

A. Yes, sir.

Q. And that concluded your exaimnation of that brain?

A. No, I examined it in other ways.

Q. Well, give us just what you did.

A. The other ways were the usual technique which have to do with what is known as hematoxylin and with cosin staining method. This is also a standard method used in all laboratories.

Q. Now, speaking of the Zenetz case; which of the particular Zenetz cases are you referring to when you talk about one of them?

A. The first case — in the other two cases, there were symptoms of other diseases.

Q. Yes?

A. And I supposed it was the first case I was questioned about.

A. At least, you were talking only about the first case?

A. Yes, I think that is true.

The Court: Was that the Italian woman?

The Witness: The article was in German — I don't think she was an Italian, the case was reported from Russia or Poland.

The Court: I meant the case you talked about examining the brain of.

The Witness: No, sir; a Polish woman, Stefinia Porembor.

BY MR. MILLER:

Q. Now, as to the first of the Zenetz cases, if I understood your direct examination on, it proceeds on the theory that it might not have been due to caffeine poisoning from the fact that the heart was contracted. Did you ever see a heart of a person killed from caffeine poisoning, and do you know how the heart would be?

A. No, sir.

Q. Then you are not prepared to compare it with the

heart of a person killed by caffeine?

A. No, sir.

Q. Well, you are acquainted with Matorica Medica and therapeutics by Schumaker?

A. I know there is such a book. I am not acquainted with it.

Q. Well now then, Doctor, reading from page 286 of Doctor Schumaker's work:

"Death may result from tetanic contractions of the heart."

Now, would that be a heart contracted just as Doctor Zenetz reported, is that the case you were talking about?

A. Yes, sir; but you could cut it with a sharp knife.

Q. Didn't Doctor Zenetz state you could not cut the heart with a sharp knife?

A. He said, with difficulty.

Q. That meant with difficulty as compared with the normal heart?

A. No, I don't know that it did.

Q. You know that it did not?

A. I have my opinions about the interpretation to be made in connection with that case.

Q. Doctor Zenetz didn't say in this case you could not cut the heart but he said it was cut with difficulty?

A. Yes, sir.

Q. I ask you again if that did not mean as contrasted with the ordinary or normal heart, taken in connection with the effects or result in that case, or are you prepared to express an opinion on that point, that is authentic?

A. Yes, sir; I would like to express my opinion about that.

Q. Well. what is your opinion that you wish to express about it?

A. My opinion is that this heart is what is known as post mortem rigidity, and when the heart is contracted by post mortem rigor, it is hard and firm, and it does not — it cuts with more resistance, but it cuts perfectly readily. It is like the difference between cutting a hard cheese and a soft cheese.

Q. And the normal heart is like a soft cheese, you say?

A. Yes, sir; if you wait long enough after death.

Q. And this one you understand to have been very rigid?

A. Yes, sir.

Q. More so than the ordinary heart?

A. Like post mortem rigidity.

Q. Now, you do know it to be a fact, don't you, Doctor, from your long experience, that all things else being

equal, qualifications and intelligence being equal, that the attendant physician and surgeon who holds the post mortem is better prepared to express an opinion from the examination of the organs as to the cause of death than a third person would be from reading the report?

A. Well, that might be so in some instances.

Q. And particularly if a man had never seen a caffeine heart?

A. Is that the question?

Q. Yes; I say particularly would that be true as to a person who had never seen a caffeine heart as compared with a man like Doctor Zenetz who has been studying the effects of caffeine for five or six years, as his report shows?

A. I don't think there is any such thing as a caffeine heart.

Q. Well, I know you don't think so, that is very apparent, but I am asking if a man has made a study of that particular science as to the effects of caffeine on the human system for five or six years, as Doctor Zenetz article shows he had, and another person of equal intelligence that has never seen a caffeine heart had been called on to read the report of the man who held the post mortem, would not the man with the long experience who had made the examination and held the post mortem be prepared, in your opinion, to express a better opinion ——

The Court: That is obvious. That does not require any answer, Doctor.

Mr. Miller: Well, it does not seem to be obvious to the witness.

The Court: He need not answer it, it is obvious.

BY MR. MILLER:

Q. You read the French language, Doctor?

A. Yes, I read the French language and the German, both not as readily as I wish I did.

Q. You are prepared to read Doctor Lemaire's article respecting caffeine poisoning, I have no doubt, and I would like to pass you an article by Lemaire. You know Lemaire is a French writer?

A. Yes, sir; I have looked through that article hurriedly.

Q. Then, you are somewhat familiar with it?

A. Yes, sir; a little.

Q. Well, will you kindly pass it to him — (addressing associate counsel.) I will ask you if Doctor Lemaire does not report as many as 30 or 31 cases due to caffeine poisoning in this article which is referred to, which you have now before you.

Mr. Sizer: I did not examine Le Count, if your Honor pleases, as a practicing physician or a physiological chemist, or a toxicologist, or anything of that kind. We simply asked him as to the Zenetz case, and as to what that indicated from a pathological standpoint.

Mr. Miller: Yes, that is true, but I am asking him to express an opinion from his pathological standpoint as to those 31 cases reported by Doctor Lemaire.

The Court: Well, that is matter in chief, so far as you are concerned; he was not examined upon that on direct examination, it is new matter, and as I have heretofore ruled, you cannot go into new matter.

Mr. Miller: I would have a right to ask him, ——

The Court: (Interrupting.) You would not get the contents of the book in evidence that way.

Mr. Miller: I did not ask for that.

The Court: But that is the effect of it.

Mr. Miller: With respect to the one of the Zenetz cases, he stated in his opinion there was no such thing as a caffeine heart. Now then, I submit I have a right to appeal to the literature which he says himself he has read, for the purpose of contradicting that statement.

The Court: Does that show a caffeine heart?

Mr. Miller: I think so.

The Court: If there is any statement in there that there is such a thing as a caffeine heart, it will be competent.

Mr. Miller: It states the effect of caffeine on the heart.

The Court: Well, that is a very different matter — I say he was asked about a caffeine heart, and if you find a statement to that effect ——

Mr. Miller: I will ask him whether or not — I am trying to follow his own language — whether or not in these cases reported, that all of them, or none of them, as shown in the Zenetz case, show that the heart was spastically contracted, and that Doctor Lemaire attributed that to the effect of the caffeine.

The Witness: Would you be willing to help me by showing which one post mortem examinations were done on?

The Court: I don't think that is competent on cross-examination — if the witness was not asked about that on direct examination.

Mr. Miller: I am not prepared to state as to that, but I presume that in all cases officially reported like that, there would be post mortem examinations, and presume that presumption attaches in the Zenetz case.

The Witness: I will see. (Examining book.)

Mr. Miller: I am perfectly willing for him to come

away from the stand and let someone else take the stand and look it up afterwards. My point is that he has doubted the authenticity of the Zenetz case because it showed a contracted heart.

Mr. Sizer: Not the authenticity, Mr. Miller.

The Court: If you have any reported cases showing a contracted heart, reported cases, due to caffeine, you may ask him about them.

Mr. Miller: I have the English translation here. It will take some time to read that article, and I suggest that he might do that and then go back.

The Court: Well, the witness may leave the stand and look it over and then you may recall him for further cross-examination.

Mr. Miller: We can doubtless recall him after the next witness takes the stand.

Mr. Hirsch: We wish to finish our re-direct.

The Court: Is there any further cross-examination, Mr. Miller, before they do that?

Mr. Miller: No.

RE-DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Is there any evidence that Doctor Zenetz made the post mortem examination?

Mr. Miller: I object to that.

The Court: The objection is sustained. I think we all know about these cases, the jury has heard so much about it that it can draw its own conclusions about it.

BY MR. HIRSCH:

Q. Did you make a miscroscopical examination of the organs of the body you referred to?

A. Yes, sir; of the important organs.

Q. Did you state that you delivered the portions that had been prepared for miscroscopic examination, to any one, and if so, to whom?

A. I submitted the miscroscopic preparations of these five to Doctor Hektoen, or Professor Hektoen.

Mr. Sizer: While we are on that subject of the Zenetz cases, may it please your Honor, Mr. Miller was to have translations of the report of the cases, and to offer them in evidence — have you done that, Mr. Miller?

Mr. Miller: Yes, I did that, and I gave it to the stenographer. I think he copied it literally into the transcript.

Mr. Sizer: I want to call the attention of the Court, that the article of Zenetz consisted in part of a report of this case and in part of his own discussion of the subject

of caffeine. I understand your Honor only admitted the report of the cases in evidence, and not the opinion or anything else, and we simply want the report of the case and not any of Doctor Zenetz's opinions, and we wish to ask to have that part stricken out.

Mr. Miller: Well, they called for authorities on the proposition that caffeine would produce death.

Mr. Sizer: For reported cases.

Mr. Miller: You called for authorities on that point.

The Court: My recollection is that he called for reported cases of caffeine causing death.

Mr. Miller: Of course, the stenographer's notes are the best evidence, and undoubtedly your Honor's recollection would be refreshed. There is more than one of those cases, and I don't know how the stenographer has reported them, whether literally, as Doctor Zenetz chronicled them, and then his own discussion or not, but whatever the number of cases are, I submit we are entitled to have them go in.

Mr. Sizer: There is no doubt about that part of it.

The Court: Yes, what ever he says about these cases in the report of the cases is to go in. His general opinion, as disassociated from those cases, is not proper to go in, and was not called for, as I recall it. This rule is subject, however, to correction if my ruling is in error.

Mr. Miller: As to that witnesses, or any other witness, who was asked to produce authority on that point ——

The Court: (Interrupting.) Sometimes the witness has been asked for authorities on a point, or on a case, and then again, asked for reported cases, and I have endeavored to preserve that distinction. My recollection is, this is limited to reported cases.

Mr. Sizer: I think your Honor's recollection is right, and the reason I called attention to it is because I noticed in that translated copy they submitted to us, there is not only the report of one or two cases but also a general disertation on the subject of the use of caffeine.

The Court: Well, that portion will be stricken out unless it is called to my attention by the stenographer's record that you called for more than the record of the cases, and in which event I will modify my ruling to correspond with the facts.

BY MR. MILLER:

Q. Now, just one more question. Does not Doctor Zenetz show in connection with the cases that he did experimental work on humans for the purpose of ascertaining the effect of caffeine thereon?

A. I don't think so.

Q. You do not recall any statement like that?

A. No, sir; the whole tenor of the article is that he could not be ranked with such men.

Q. That is your conclusion?

A. Do you want my reasons?

Q. No, I ask you if that is your conclusion.

A. Yes, that is my conclusion.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. I think we should have those conclusions.

The Court: I do not think that question and answer are relevant under the ruling. The question of Doctor Zenetz's cases was not called in by the question which called for recorded cases.

Mr. Sizer: Inasmuch as counsel, cross-examining, has asked witness about the Zenetz case, I think he is entitled to give that.

Mr. Miller: I didn't ask him for Zenetz's qualifications.

The Court: He asked what the article showed and that was objectionable, and I want to strike it out.

Mr. Sizer: I do not ——

The Court: It seems to me that both sides, in the multiplicy of detail they are going into, are bewildering the jury, and I am from time to time of my own motion excluding matters. It is difficult for the jury to follow all of the ramifications of this testimony and we may lose sight of important things because of this unnecessary detail. I therefore exclude this.

DR. JOHN MARSHALL,
recalled as a witness herein, testified as follows:

CROSS-EXAMINATION, (Continued.)
BY MR. MILLER:

Q. Yesterday in stating the distinction between the foreign and American and English authors in dealing with toxicology in showing why the foreign authorities dealt more extensively with poisons than the English authorities you instanced the fact that certain foreign authorities treated tartaric acid as a poison and I assume from that that the English authorities do not.

A. The English authorities do not.

Q. I quote to you Brundage on Toxicology — I hand it to you, and I will ask you to state whether or not on page eighty you find a recorded fatal case or a recorded case of poisoning by tartaric acid.

A. I see no report of a case of death by tartaric acid administration.

Q. But it is referred to as a toxic substance in that treatise on toxicology?

A. The fatal dose is given as one ounce.

Q. That means, of course, it is toxic?

A. Yes, sir.

Q. That is an English publication?

A. Yes, sir; published in this country, but I should like to say that I do not consider that this book is recognized as a standard authority or toxicology.

Q. Now, Doctor Witthaus was on the stand yesterday. Please examine the volume of his book that he himself wrote on toxicology and on pages 641 and 642 state if he does not deal with tartaric acid.

A. You remember that I stated yesterday I had not consulted Doctor Witthaus' book because it had disappeared from my library but I find tartaric acid is mentioned here.

Q. Kindly refer to Taylor, page 653, which I will pass to you, and state if that does not also deal with tartaric acid as a toxic substance or poison.

A. Yes, sir; it does.

Q. Now, please refer to Dwight on Poisons, Their Effects and Detection, page 732, and state if tartaric acid is not found thereon and the treatment for it as a toxic substance given.

A. Tartaric acid is mentioned here but I do not see on this page any prescription.

Q. That refers you to where you can find the treatment.

A. The same treatment as oxalic acid.

Q. Those publications that have been submitted to you are all published in the English language and are English publications?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Tartaric acid is the acid found in the grape?

A. Yes, sir.

Q. You say the toxic dose, or the lethal dose, is given as one ounce?

A. Yes, sir.

Q. Which?

A. The fatal dose.

Q. One ounce is how many grains?

A. About 460 grains.

Q. Would it not be 480 grains?

A. Yes, sir.

Q. Those same foreign authors or foreign works that you referred to on yesterday treat garlic as among the toxine?

A. Yes, sir.

Mr. Miller: I did not go into that, I only cross-examined him as to what he said yesterday, when I did not have the books on hand. Of course, if this is to be made relevant I shall have to ask, after I get the books, the right to recall him.

The Court: We will get to the question of recalling when we reach it, but I sustain the motion. I think we have gone for enough on that.

BY MR. SIZER:

Q. Doctor Witthaus is in now. Do you want to further cross-examine him before we go on to some one else?

Mr. Miller: No, sir.

DR. LUDWIG HEKTOEN,

the next witness called on behalf of the Claimant and Intervenor, first duly sworn, of lawful age, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Where do you reside?

A. Chicago.

Q. What is your present occupation?

A. I am professor of pathology.

Q. At what institution?

A. Chicago Rush Medical College.

Q. How long have you held that position?

A. About sixteen years.

Q. Where did you receive your technical education?

A. I received my technical education partly in Chicago and partly in Europe.

Q. At what institution in Europe?

A. I studied at the University of Upealla, the University of Berlin, the University of Prague, the University of Liverpool, and elsewhere.

Q. You have confined your medical work to that of pathology?

A. Yes, sir.

Q. What is pathology?

A. Pathology is a scence which treats of disease, especially the causes of disease and the effects of disease upon the structure of the body.

Q. Have you written any work on pathology and if so, what?

A. I have taken part in the writing of the American Textbook of Pathology.

Q. Do you hold any position by virture of which you make post-mortem examinations in so far as deaths due to accidents and violence are concerned?

A. Yes, sir; yes, I do.

Q. How many post-mortem examinations have you made?

A. Several thousand post-mortem examinations.

Q. What is the object of a post-mortem examination?

The Court: I think we all know that.

BY MR. HIRSCH:

Q. Are you familiar with the appearance and structure of animals ordinarily used in the laboratories, both in health and disease?

A. I am.

Q. Were you asked to go to Ann Arbor, Michigan, at any time, and if so, what was the date, to examine some guinea pigs that Doctor Vaughan had?

A. I went to Ann Arbor and spent May 17, 1910, there and examined fifteen guinea pigs in Doctor Vaughan's laboratory.

Q. Just state what you did at that time in the way of examination of guinea pigs.

A. I examined all the important organs in every one of those guinea pigs and procured specimens for microscopical examination.

Q. What was the result of your examination?

A. The results of the examination were that in all the animals all the organs were found to be perfectly normal, both on gross and on microscopical examination, except that in the spleen of Guinea Pigs numbered 13 and 14 there was a slight excess of pigment.

Q. Was that due to caffeine?

A. In my opinion it was not.

Q. You say you examined them microscopically; if so, when and where, and what did you do for the purpose of keeping these guinea pigs intact?

A. I placed the pieces in standard pickling solution at the time I made the post-mortem examination, and then I took the bottles containing the solution and the organs back to Chicago and completed the microscopical examination in the course of the next few months.

Q. Did you see these animals killed?

A. Yes, sir.

Q. Did you examine them immediately after they were killed?

A. Yes, sir.

Q. What organs did you examine microscopically?

A. I examined the brain, the lungs, the heart, the sorts, the liver, the spleen, the pancreas, the stomach, the intestines, the kidneys and the super-renal bodies, and in some cases the bone marrow.

Q. Did you find anything except as you have stated that was away from the normal?

A. No, sir.

Q. Did you examine the animals you found in Doctor Wessener's laboratory, and if so, state what and where they were and how long after death, and if you examined them macroscopically and microscopically?

A. I examined, in all, four rabbits at Doctor Wessener's laboratory in Chicago. Three of them were examined last October. Those were Rabbits Nos. 3, 4 and 5. The fourth rabbit was examined last February and was numbered No. 6. These four rabbits were all killed in my presence by a blow on the back of the neck and they were examined immediately afterwards. The organs all appeared to be practically normal to the naked eye and they were also found to be perfectly normal upon the microscopical examination except that there were slight changes in the liver of Rabbit No. 3 and in the liver of Rabbit No. 6.

Q. Do you know which were the controls and which were the tests, of your own knowledge?

A. No, sir; I do not know of my own knowledge.

Mr. Hirsch: We will ask to be allowed to submit a list as to which were the test and which the control animals, and we can recall Doctor Wessener.

The Court: That is already in, I think.

BY MR. HIRSCH:

Q. Have you made any examination on human bodies to ascertain if there is any change due to taking of coffee?

A. I have.

Q. State what and under what conditions you did it.

A. I took part in the post-mortem examination of almost all the bodies referred to by Doctor Le Count. There were two of those bodies that I did not see, but I have made microscopic examination of the organs of all the bodies except one.

Q. Did you find any changes there that were attributable to the drinking of tea or coffee?

A. I did not.

Q. The animals that you referred to, did you examine them particularly or did you make any special study to determine whether there were any indications of arterioscler-

osis? If so, what?

A. I looked especially for changes in the arteries and found none.

Q. From your examination of rabbits, guinea pigs and humans, would you say that caffeine causes any change, either in the lower animals or human beings?

Mr. Miller: I wish to know if this witness, from a medical standpoint or as a physiologist, is prepared to state the effect of caffeine on a human being.

Mr. Hirsch: I will put it — Will it produce any structural change?

Mr. Miller: If he is qualified to express an opinion, all right.

The Witness: I think I am.

BY MR. HIRSCH:

Q. Now, I want to know from your examination of the bodies of animals, human beings, rabbits and guinea pigs, whether there could be any structural changes from the taking of caffeine-containing beverages.

A. In my opinion none.

Mr. Hirsch: Do I understand, your Honor, that we cannot refer to the Zenetz case?

The Court: If you have any new point you can, but to go over the same matters already brought out so often, I do not think it necessary.

Mr. Hirsch: That depends, but I will ask if the Doctor has examined the Zenetz case.

The Court: And if there is anything that he wants to say.

BY MR. HIRSCH:

Q. Is there anything in addition to what has been brought out that you can say about the Zenetz case?

A. I do not think so. I think I would have to go over the same ground. I do not believe it was a case of caffeine poisoning.

Mr. Miller: I object to that answer, and what he believes it to be.

The Court: I exclude it unless he gives his reason. I will allow him to say whether the report shows that anything indicates it was or was not a death from caffeine poisoning.

BY MR. HIRSCH:

Q. Give your reasons.

A. The reasons are that it was not conclusively shown that the woman took any caffeine.

The Court: I think that has been fully covered before.

BY MR. HIRSCH:

Q. Anything else?

A. In the next place, there is nothing in the report to indicate the length of time that elapsed before the supposed dose of caffeine was taken and the time of the death. It says in the report while she was talking with her friend in the house she gave a scream and fell down dead. In the next place, the post-mortem examination is utterly inadequate to establish anything as to the cause of death as given in that report.

Q. From the examination of the guinea pigs, rabbits, human beings — did you notice any chromotolysi?

A. I did not.

The Court: Where were those cases of pigment that you noticed on some of the animals?

The Witness: In the spleen.

BY MR. HIRSCH:

Q. What was that slight excess of pigment due to?

A. It was derived from the red blood corpuscles. If they break down, the pigment is deposited in the spleen.

Q. That is a normal condition?

A. That occurs normally.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. In one of those Zenetz cases about which you have been speaking the report is that the woman did not feel quite well and that at night began taking a powder every two hours. You recall that?

A. Yes, sir.

Q. And up to morning; that you understand to be the morning of the following day?

A. Yes, sir.

Q. "She had taken five powders?"

A. Yes, sir.

Q. And at eleven o'clock in the morning she fell unconscious?

A. Yes, sir.

Q. You say there is nothing in that report to show how long after she took this until she fell unconscious?

A. I did not say that.

Q. You do not mean to be understood as making that statement?

A. I didn't say it and therefore I didn't mean to be understood that way.

Q. The report says that at the autopsy made the next day they found the heart contracted like a fist. Do you

mean to say from that report there is nothing from which you can judge as to when the autopsy was held?

A. No, sir; I didn't say that.

Q. That is what I understood you to say.

A. But I didn't say it.

Q. You state, I believe, that you are acquainted with the physiological action of caffeine on the human system?

A. I did not state that.

Q. What was that that you said — how could you state that in your opinion there were no effects due to caffeine on those guinea pigs or rabbits if you do not know what the physiological action of the drug would be when taken?

A. I stated there were no structural changes due to caffeine.

Q. How do you know?

A. I know there were no structural changes in the bodies I examined.

Q. All you know is you didn't find anything out of the normal?

A. That is it.

Q. Except you found an excess of something in two specimens?

A. Yes, sir.

Q. That is all you observed, and from that you conclude that caffeine did not have any action?

A. Yes, sir.

Q. That is on the presumption that the caffeine had been administered?

A. It had no effect on the structural condition of the organs.

Q. What do you mean by "structural" as compared with other portions of the organs?

A. I mean the anatomical appearance of the organs, there was nothing to indicate that those organs were diseased.

Q. Now, are you familiar with the authorities that deal with anatomical changes resulting from caffeine — have you read the authorities on that subject?

A. I do not know of any authorities that treat of anatomical changes due to caffeine.

Q. Take Doctor Kobert, on page sixteen where he makes this statement ——

The Court: This witness has not expressed his opinion based on reading, but from his observation of those particular cases.

BY MR. MILLER:

Q. Is the opinion which you have expressed here based entirely on the observation you made of these particular

specimens or is it based on your examination of the literature and study of the effects of caffeine on the anatomical structures and changes?

A. My opinion is based upon what I have seen myself.

Q. In these particular specimens?

A. In these cases and in these animals.

Q. Not on anything you have read?

A. I have not been able to find anything.

Q. So that you have not read anything respecting the effects of caffeine on the system?

A. On the structural changes of the system.

Q. Have you searched to see whether or not there was anything written on that subject?

A. I have searched in the usual sources a pathologist would search in.

Q. Can you name the books you have examined?

A. I can some of them.

Q. Did you examine Kobert?

A. No, sir.

Mr. Hirsch: I would like for Mr. Miller to state the edition of Kobert.

The Court: That is not admitted.

Mr. Miller: I have no objection — it is 1906.

Mr. Hirsch: That is not a pathological work.

The Court: I have not admitted that.

Mr. Sizer: But counsel has discussed it.

The Court: But I have excluded it all. If counsel want to ask privately for the information they can do so.

BY MR. MILLER:

Q. Do you know whether or not the administration of caffeine, from your personal knowledge, would cause any change in the structure? Or have you experimented to ascertain?

A. No, sir; in so far as I have taken part in those experiments that have been outlined by Doctor Vaughan and Doctor Wessener, and so far as I have examined the bodies of human beings who have been drinkers of tea and coffee.

Q. That is, of course, based on hearsay?

A. Yes, sir.

Q. Did you examine to ascertain in those specimens that you examined whether or not there were any vascular changes?

A. Yes, sir; I did and there were none.

Mr. Sizer: I want to recall Doctor Witthaus to ask him one question.

(Witness excused.)

DR. RUDOLPH WITTHAUS, recalled as a witness herein, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. You were asked yesterday on cross-examination about thirteen cases of alleged caffeine poisoning which were referred to in your work and which you stated you copied from Kobert without knowing anything about the cases. I want to know if since your cross-examination you have consulted a subsequent edition of Kobert to the one from which you copied these and whether or not in this subsequent edition of Kobert any reference is made to those thirteen cases.

A. It is omitted entirely in the second edition.

Q. And the edition from which you copied the reference was the first edition?

A. Yes, sir. I may say that the second edition was not out when my book was written.

RE-CROSS-EXAMINATION,
BY MR. MILLER:

Q. State if it is not true that in the edition of Kobert which you consulted and about which you have testified on redirect examination this morning, on page 16 of the table of contents in dealing with poisons which without causing serious anatomical changes may cause death, the author includes along with morphine, cocaine and aconite, and strychnine, the substance caffeine.

Mr. Sizer: What book is that?

Mr. Miller: Your edition of Kobert.

Mr. Sizer: The last edition?

Mr. Miller: Yes.

BY MR. MILLER:

Q. Look on page sixteen and you will find it marked there, and caffeine is No. 17 of the group there.

A. On page sixteen?

Q. Yes. Page sixteen of the Table of Contents.

A. It is on page eighteen.

Q. I say, on page sixteen under the group of poisons which without causing serious anatomical changes may cause death including those substances which I previously read along with it and immediately following under Group 17 you do not find caffeine recorded.

A. Yes, sir; caffeine is recorded but not along with morphine.

Q. Morphine is recorded in the same group and is one of the same class, and under that same title?

A. Yes, sir; under the same general head.

Q. Now turn to Part No. 3 of that book, on page 892, under the title of poisons which without causing serious anatomical changes may cause death, and look at Division One under the third part and under the heading "Poisons of the Cerebro-Spinal Nervous System," and state if such poisons are not divided into groups, caffeine being Group 17 and found on page 1079.

A. That is the same as in the table of contents.

Q. It is treated in the text the same way?

A. Yes, sir; but it does not give any case of death.

Q. I am talking about cases of poisoning; you are a toxicologist. Now turn to Doctor Kionka's work on toxicology entitled: "Fundamentals of Toxicology" and under the grouping of poisons of various kinds, including nerve poisons, on pages 5 and 6, and included along in the same group — chloroform, cocaine, opium and morphine— and state if you do not find caffeine.

A. Yes, sir.

Q. Now turn to Doctor Blucher's "Poisons and Poisoning" and on page 94, after dealing with cocaine, just before treating of Belladonna, state if the doctor does not make the following observation:

"Coffee contains caffeine and tea contains theine. Both are identically the same in their action to cocaine only that the poisonousness of caffeine is far behind that of cocaine."

A. It is so stated here.

Q. Now, on page 95: (Reading.)

"Very strong infusions of coffee have caused acute caffeine poisoning, — yes, even death."

A. So he says.

Q. Will you give us a literal translation of what is stated?

A. That is practically it.

Q. I thought you said it was not. (Reading.)

"The symptoms or conditions of excitement resembling intoxication, dizziness, ringing in the ears, headache, trembling, restlessness, sleeplessness, confusion of ideas, palpitation of the heart at times and also convulsions. Death may occur from paralysis of the heart. For this reason people suffering from heart disease should be unconditionally forbidden the use of coffee, especially of strong coffee, the serious consequences being made clear to them."

Q. Do you find that laid down as part of the text?

A. Yes, sir.

Q. After that follows the treatment for acute poisoning of that class?

A. Yes, sir; after that follows chronic poisoning.

Q. And then follows the treatment for that?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Do any of these works you were asked about cite or refer to any case of death from caffeine?

A. No, sir; except that last case recognizes the possibility. I never heard of that man before, however.

Q. Does it refer to any specific case of caffeine poisoning?

A. No, sir.

Q. These are all foreign works?

A. Except Brundage.

Q. Do these same works discuss under the head of toxic substances, acetic acid and glycerine and ginger, sage and peppermint and table salt, and articles of that kind?

A. Yes, sir.

BY MR. MILLER:

Q. But not in the same group, not as a nerve and muscle poison?

A. I do not recall where they are.

Mr. Miller: Then you are not prepared to say, so you can stand aside.

(Witness excused.)

DR. REYNOLD WEBB WILCOX,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Will you state your full name?

A. Doctor Reynold Webb Wilcox.

Q. Are you a practicing physician?

A. Yes, sir.

Q. Located where?

A. New York City.

Q. How long have you practiced?

A. For thirty years.

Q. Will you state your medical education and qualification?

A. I was graduated as a Bachelor of Arts at Yale in 1878. I received my degree of Master of Arts from Obert College in New York in 1881 and Doctor of Medicine from Harvard University in the same year, and I received the Honorary Degree from Maryville College, Maryville, Tenn. I served for short periods in the hospitals in Boston and I

studied fifteen months actual study in Vienna, Heidelburg, Paris and Edinburgh.

Q. Has your practice been extensive or otherwise?

A. Presumably extensive.

Q. Have you had any experience with your patients and persons with whom you have associated with respect to the use of caffeine as contained in beverages?

A. I have directed patients to make use of coffee at various times ——

Mr. Miller: I object to that because it is not responsive to the counsel's question.

Mr. Sizer: I think it is.

The Court: I think that objection is one to be raised solely by counsel asking the question.

Mr. Miller: When counsel asks what his experience is, his answer should be wholly confined to that. Counsel has not asked as to whether it was a therapeutic agent or not, and unless he states he directed it as a therapeutic agent he should not be allowed to state he directed its use.

Mr. Sizer: He says he has been a physician for thirty years.

The Court: I think he is qualified to express an opinion as to therapeutic effect. The objection that it is not responsive is one to be made by the counsel asking the question.

(The question was read to the witness.)

A. Yes, sir.

BY MR. SIZER:

Q. Is caffeine as contained in beverages when used in moderate quantities by an individual under normal and ordinary conditions — is it injurious to health?

Mr. Miller: I object to that as putting limitations on the question that are not warranted under the proof. In the first place, what is a moderate quantity for one purpose is shown to be distinctly an immoderate quantity for another, and that is an unfair limitation.

Mr. Sizer: I propose to follow that up by showing what is a moderate quantity.

The Court: He can show what he means by moderate quantity in his answer.

BY MR. SIZER:

Q. In that same connection you may state what you consider a moderate quantity of caffeine to be taken in the form of beverage by an ordinary person.

The Court: I mean that the witness can state what amount he meant by "moderate."

BY MR. SIZER:

Q. Then you may state in your answer what you mean

by the moderate use of caffeine in connection with your answer.

A. I think the average healthy adult will take with benefit to himself as a minimum, four to six grains a day. I have myself taken as near as I can ascertain about six grains of caffeine a day for the last thirty years.

Q. Suppose a person should take an excessive amount of caffeine, would the results that would follow from that be of a permanent or serious character or of a temporary character?

Mr. Miller: I object to that. He may state what the effect will be.

The Court: That exception is well taken except that as heretofore ruled, the witness may state what would be the effect on the general health and then state what is his opinion the effect would be on the general health.

Mr. Sizer: I withdraw that and state it this way:

BY MR. SIZER:

Q. In the event a person takes an excessively large quantity of caffeine, what would be the result following and would those results be permanent or temporary in their character?

A. A large dose of caffeine would be likely to cause some irregularity of the heart, some flushing of the face, increased flow of urine, perhaps some nervousness lasting probably during the time the caffeine was in the body — probably the end of the symptoms would be gone within twelve hours, or quite likely even six.

Q. Does an increased flow of urine necessarily indicate impairment of the health?

A. Not at all.

Q. Have you made any test on yourself to ascertain the effect of taking excessive quantities of caffeine?

A. I have.

Q. What was the quantity you took and over what period of time did you take it?

A. I took forty-two grains of caffeine, the alkaloids, within an hour.

Q. What effect did it produce on you?

A. It flushed up my face considerably.

Q. Was that the only effect that you observed?

A. The dose was taken about three o'clock in the afternoon, between three and four o'clock; I didn't go to sleep until three o'clock the next morning, and it had a diuretic effect.

Q. How long did that effect last?

A. The diuretic effect?

Q. Well, either of the effects, all of effects you have mentioned?

A. They were apparently all over because I slept from three to eight and was awakened at eight.

Q. Now doctor, would that be a very large amount of caffeine for any person to take in the form of a beverage?

A. Figured out as in Coca-Cola, the way that Coca-Cola I understand is taken, one part of coca cola to seven of carbonated water, it would represent about two gallons of liquid or over two gallons of liquid.

Q. Could an ordinary person take that amount of liquid in the course of a day?

A. I think he would have hard work to hold it.

Q. Is caffeine as taken in the form of beverages a habit forming substance?

A. Not in the sense that it is used, requiring more to satisfy the real or fanciful longing for the substance.

Q. Did you have occasion sometimes in your practice to prohibit the use of caffeine-containing beverages on account of the condition of the patient?

A. Yes, sir.

Q. Do you have any difficulty in inducing them to discontinue the use of it if the effect of its use is found to be injurious?

A. No, sir; I have not found—thus far found it to be so.

Q. Is there any depression that follows the use of caffeine in the form of beverages in moderate quantity?

A. If you are exalted, you will come back again to the level. I don't think you will go below the level. The depression is about equal to the exaltation, and the depression will not carry you below the level from which you started.

Q. What would be the effect of the amount of water and syrup contained in an ordinary glass of Coca-Cola in preventing the taking of too much caffeine?

A. It is a question of bulk.

Q. Would the question of the amount of sugar in it act as a preventative of taking excessive quantities?

A. Well, I think the bulk would be the chief obstacle. The sugar would undoubtedly have a very nauseating effect in one if he undertook to take so much of it.

Q. You say you have used caffeine in beverages?

A. Yes, sir.

Q. For a number of years?

A. Yes, sir.

Q. About what quantity have you used?

A. I should think about six grains. I probably used less in the early years, in my student days, because I had

to live very economically and I probably did not get as good coffee as I get now and I therefore get more caffeine now than I did when I started using it.

Q. Has the use you have made of caffeine resulted in any serious impairment to your health so far as you know?

A. Not so far as I know, none.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Doctor, what did you weigh when you experimented on yourself with caffeine?

A. About two hundred and ten pounds.

Q. What was your age?

A. I am fifty-five years old to-morrow.

Q. I know, but what was your age when you made the experiment?

A. These experiments with the caffeine were made on last week, Tuesday.

Q. Then you stated also that as you understand what is put in Coca-Cola — I infer from that you are not acquainted with the drink yourself?

A. I never drank but one glass.

Q. Now, what was that occasion for forbidding the continuance of the use of caffeine in your patients?

A. I did not say caffeine ——

Q. Well, you said caffeine substances.

A. I am willing to stand by the stenographer's notes; I said beverages.

Q. Well, caffeine as contained in beverages?

A. Yes, sir.

Q. What was the occasion for discontinuing the use of a beverage containing caffeine?

A. You want what I mean ——

Q. Yes; what was the reason for its discontinuance?

A. In tea the reason for discontinuing the beverage is that the amount of tannic acid is considerable, and when tea is made as it is usually made by domestic servants, where it is cooked from morning until night and begun the next day, it contains quite a strong solution of tannic acid which disturbs digestion, and that would be an objection to that.

Q. Is that the only objection you had?

A. And besides the theophyllin and adenin which is contained in tea in small quantities is said to be poisonous.

Q. Are those the result of caffeine?

A. They belong to the xanthine series.

Q. Do they belong to the same group as caffeine?

A. They are related generically and chemically.

Q. Well now, proceed. Any other kind of beverage?

A. In coffee you have the volatile substance — volatile oils and alcohol, and you have caffeine or caffeal which is said to be developed in the process of roasting, which disturbs digestion after protracted use.

Q. And is that the only reason for prohibiting the use of coffee?

A. You get the same results with decaffeanized coffee if it is prolonged.

Q. I ask you whether or not it was because of these substances that you have enumerated or whether it was also in whole or in part due to caffeine.

A. You mean to persons in health?

Q. No, I mean to persons where you direct its discontinuance.

A. There are certain instances of heart disease where it might be advisable to discontinue both tea and coffee on the ground of the caffeine content. That must be conceded.

Q. That must be conceded?

A. Yes, sir, in certain cases.

Q. What is the percentage of tannic acid in tea?

A. I don't know the percentage. It is sufficiently disagreeable in home-made tea to eliminate its use.

Q. Well, now, you wrote a book?

A. Yes, sir.

Q. On therapeutics?

A. Yes, sir.

Q. Now turn to that book, on page 382—

Mr. Hirsch: I suggest that you give the eddition of these books so the witness will know.

Mr. Miller: All right; I will be pleased to do so. This is 1905.

BY MR. MILLER:

Q. In discussing the action of caffeine on the heart you stated that from recent careful experiments on dogs whereby the effect of caffeine appears to consist in, first, an acceleration of the rhythm. What do you mean by an acceleration of the rhythm? What do you mean by rhythm?

A. Rhythm means the interval between the successive beats.

Q. That is, it made the heart beat faster?

A. Yes, sir.

Q. And second,—"A shortening of the movement commencing in the auricle and spreading to the ventricle." Explain a little more clearly what you mean there by auricle and ventricle.

A. The auricle is the upper chamber of the heart and the ventricle is the lower, and the blood passes from the auricle to the ventricle.

Q. And it makes a movement shorter as compared with the ventricle when you take caffeine?

A. Yes, sir.

Q. Then following that is the statement: "In large does auriculo-ventricular arhythmia, terminating in fibrilliary contractions of the auricle and finally of the ventricle." That is your present view on the subject?

A. That is not the last edition of the book in my opinion. If you will kindly look on the title page, you have it there—

Q. I said it was 1905.

A. There have been several reprintings.

Q. At the time you wrote this book you believed this?

A. Well, will you excuse me, will you answer my question?

Q. I beg your pardon. I quoted before that it was 1905, this edition, the sixth edition.

A. There is another edition since that.

Q. I asked you whether or not this statement was believed by you to be true when it was written in this book.

A. It was believed to be true when it was written.

Q. Have you changed your view since you wrote this book on that subject?

A. Yes, sir.

Q. Have you made any change in that respect in your new edition?

A. I cannot tell without comparison.

Q. Well, have you got your new edition here, Doctor so we could compare it?

A. It is in the city, I presume. I presume the same statement is in the last edition.

Q. Now, if the same statement is in the last edition, then the getting of the last edition would not make any change—I want to know what caused you to change your views and opinion since the last edition of your book.

A. If I recollect correctly my last edition was published in the year of grace 1907. Four years has elapsed within which various things have happened.

Q. And in the meantime you have been employed by the Coca-Cola Company?

A. Not for four years.

Q. But I say, in the meantime and since the last edition of your book was written?

A. Yes, sir.

Q. Now then, under the effect on the vessels, I notice

this statement: (Reading:)

"Caffeine stimulates a vase-moter center and under its influence the blood vessels are therefore contracted, causing a marked rise in the arterial pressure?"

Have you changed your view on that subject?

A. I have not.

Q. And — (Reading)

"The muscle fiber in the walls of the vessel, in common with the muscles in general, is also acted upon by the drug.'

Is that true or not?

A. To the best of my belief it is true.

Q. Then dealing with the muscles, I find this statement: (Reading:)

"Small doses increase the excitability of the muscles, augmenting the quickness and force of their contraction."

Is that true?

A. That is undoubtedly the result of laboratory experiments.

Q. But is that true?

A. I have no personal knowledge of it. I believed it to be true at the time it was written.

Q. And I suppose under larger doses the height of the contraction of a muscle is less, the maximum load it is capable of lifting is smaller and the muscle is exhausted by tetanus more quickly than a normal muscle. The contraction then becomes smaller and smaller, and the muscle gradually passes into rigor." Is that statement true?

A. It would be true from a local application of caffeine to the muscle, continued over a considerable period of time.

Q. But you did not limit that to the direct application there in your book.

A. No.

Q. And the following: (Reading:)

"The contraction then becomes smaller and smaller and the muscle generally passes into rigor."

Is that your view on the subject?

A. That is a laboratory experiment.

Q. Do you believe that is true?

A. I believe it is possible.

Q. Now, I find this further statement:

"The effect of caffeine on the cord" and that means the spinal cord—answer out, Doctor, the stenographer cannot hear you.

A. Yes, sir.

Q. (Continuing reading.) "Are reflex Irritability, then tremors, and finally tetanus. They closely resemble those of strychnine but are very much smaller, and occur

only with relatively large doses."

Is that the view you hold?

A. Laboratory experiments.

Q. Now, one more statement here:

"Caffeine is excreted in the urine in small quantities, but a considerable proportion of it is probably decomposed with the formation of xanthine, which is further broken up into urea".

Do you hold to that view?

A. Yes, sir; except I think it would take very large doses of caffeine to have any carried into the urine. I think under normal conditions, it is practically all broken up.

Q. Well, if it is broken up, then that is the process which it undergoes in the body, it is broken up into this end product as somebody discribed it the other day, and is carried away in the urine in that way.

A. Yes, sir.

Q. Now, you wrote an article and contributed it to the Medical News sometime since entitled "Review of Therapeutics for the Last Twelve Months" in which and dealing with caffeine, I find this statement:

"Further, the primary changes induced by the digitalis series are not so much evidenced by increased irritability of the parts effected, as by increased contractibility and increased dilation (increased tone) while there is no evidence of such change in the late stages of caffeine poisoning in which the ventricle is directly effected."

What do you mean by caffeine poisoning in that connection?

A. Will you pass me up the book?

Q. Yes, with pleasure.

A. (Examining the book.)

The Court: We will take a recess for five minutes.

The Witness: I am ready to answer this question.

The Court: All right, proceed.

The Witness: The quotation which you have presented me with, Mr. Miller, is from a presidential address which I delivered before the American Therapeutic society of New York May 13, 1902.

BY MR. MILLER:

Q. Yes.

A. You will observe in this address that this contribution to therapeutics which I believed were of importance, were mentioned. You will also observe in the very paragraph or section which you read is: "This is a report and abstract of the report of Cushmy and Van Oss" and you will observe also that in that statement, I have not given

my personad assent or dissent to it. It was a quotation from a report for the information of the Society, for their consideration. It is not a personal opinion in any sense of the word.

Q. I didn't ask as to that—I was asking you as to the language "caffeine poisoning."

A. Well, it is from Cushny and Van Oss.

Q. Well, I ask you what you mean by the use of the expression, first I ask you if that is the quotation in the text book or in your language which I read and which the text book shows ——

A. (Interrupting.) The text book shows that it is an abstract from what Cushny and Van Oss say.

Q. Well, do you include any portion of the text which I read there in the quotation marks to show you have taken it from some other work?

A. I doubt if you will find a qotation mark in the whole address.

Q. Yes, my simple question was not for your opinion; now as to the authenticity of Cushny's expressions or anybody else's; what did you mean when you used the term caffeine poisoning in that address?

A. What did I mean?

Q. Yes.

A. I meant that it was from Cushny and Van Oss—they undoubtedly used the word poisoning. If they had not used the word poisoning, it would not have been put in the abstract.

Q. Then you yourself did not mean to use the term as coming from you, but as coming from the two authorities which you quoted?

A. Yes, sir; absolutely.

Q. Cushny is a recognized authority?

A. He is a very able man.

Q. And a recognized authority?

A. Yes, sir; on pharmacological; and in pharmacology the word poison is used in the restricted sense.

Q. Who is Van Oss?

A. I don't know Van Oss.

Q. Why were you quoting from a man when you did not know him?

A. Because the article appeared under the name of Cushny and Van Oss, and it may be that Van Oss is a student or assistant of Cushny. Cushny's name would carry weight.

Q. Now, referring back to your book, it was written for the information of practicing physicians and not for instruction in laboratory experiments?

A. Not for practicing physicians—it comes from three sources—it comes first, from the accumulated experience of physicians, it comes from laboratory experiments on animals, and it comes from careful reading of the combined experience of the literature and the clinic.

Q. I ask you, please, to answer the question, that is, whether or not your book was written to circulate for the benefit of the medical practictioners?

A. That is a book for the instruction of students. The medical practictioner will find it a little too elementary.

Q. What character of students, medical students?

A. Medical students, yes.

Q. Would there be any difference physically, Doctor, as to the manner in which caffeine comes in contact with the muscle, whether directly or through the medium of the blood stream?

A. Yes, sir.

Q. What would that be?

A. In direct contact with the muscle, you can have not only the physiological effect, so-called, but you can have a contact effect or direct chemical effect upon the muscle, and in direct contact with the muscle, you can have a massive effect, whereas, by dissolution of the caffeine to the muscle by the blood stream, it comes more slowly and the doses cannot be so massive.

Q. Well, that would be one only differing in degree, in so far as the physiological action is concerned.?

A. It would be different in degree and somewhat in kind.

Q. Now, I have just looked at the preface of your book, where you say it was intended for students—and I find this statement signed by the author:

The Court: I don't see the purpose of it, why that has anything to do with it.

Mr. Miller: Well, he states it was written for medical students.

The Court: Well, that is immaterial. He has expressed his opinion for whatever it may be worth.

Mr. Miller: I simply want to state that it says it was written—

The Court: Well, that is immaterial.

Mr. Miller: It would be in contradiction of him.

The Court: He stated that it was too elementary for the general use of physicians.

Mr. Miller: I respectfully except — I would like to have the statement that I referred to in the book, made a part of the record.

The Court: You may show it.

BY MR. MILLER:

Q. Is the increased flow of urine due to the action on the kidney, of benefit in a healthy person who is passing the normal amount of urine?

A. It is neither one nor the other. A person in health who is drinking more beer than is necessary, a flow of urine is very beneficial to him, and relieves his blood pressure. It does no harm to the man, in fact he gets rid of the excess of beer in that way.

Q. Then, you are an advocate of passing more than the normal amount of urine, as I understand it?

A. No, not unless—why no, I am not an advocate of it. In certain instances, it is a very proper thing to do.

Q. That is where a man needs this as a therapeutic agent, but I am speaking of a man in normal health?

A. It won't do him any harm if he passes a little more water.

Q. Well, that is what I want to ascertain.

A. Yes.

Q. Then, if I understand you correctly, a constant stimulation of the kidneys beyond the normal function is without appreciable effect?

A. It would be very hard to get any appreciable effect from it, by that, you mean structural effect, I suppose.

Q. Now, this caffeine that you took or have consumed, from four to six grains per day, is that in the form of coffee or tea?

A. I take two cups of coffee in the morning at eight o'clock. I usually get a cup of tea with my luncheon at two o'clock or as near after as I can get it, and I have an after dinner cup of coffee with my dinner at seven o'clock.

Q. At seven P. M. ?

A. Yes, sir, and sometimes get it at night, if I happen to be up, I will take five or six grains of caffeine to keep me awake.

Q. Is that the alkaloid?

A. Yes, sir.

Q. Now, you stated, I believe, that in your opinion the average adult person, or at least in certain adult persons, four or six grains might be taken as a beverage without deleterious effect?

A. Yes, sir.

Q. Without harmful effect?

A. Yes, sir.

Q. Now, that much would be contained in these cups of coffee and tea that the average person would take if he took one with each meal, would it not?

A. Yes, sir; of course the proportion of the tea and

coffee and the quality of the tea and coffee used, causes the amount alkaloid to vary, but as ordinarily made, with the skill of the average domestic servant, that is estimated as about the quantity.

Q. That you would get in one cup at each meal?

A. Yes, sir; about.

Q. Do you read German, Doctor?

A. Not as well as I would like to.

Q. I say, do you read it?

A. I can read it.

Q. Referring to page 577 of Kunkil, the passage marked state if it is not true that the author lays it down there that the stimulation of caffeine is deleterious where the caffeine or the stimulus is used in the case of a normal man. You might read a literal translation of that to the stenographer, if you will. There are only three or four lines.

A. A free translation is that it is not worthy that with somewhat larger doses used for diuretic purposes, there as signs of kidney irritation — cylindrical casts, a slight quantity of albumen, the renal epithelium there is a question — apparently one should not go above the dose of from seven to eight tenths of a gram. That is from nine to ten grains I should say.

Q. That is a therapeutic dose, as recognized there? That is what is recognized as a therapeutic dose, is it?

A. Well — Yes.

Q. In that connection, did you so understand it?

A. The opinion of this author in a book, written at some time previous to 1901, and under which date, 1901, appears on that page, would appear that he did not consider it proper to go above ten grains as the daily quantity of caffeine to be ingested.

Q. I say that is the therapeutic dose—

A. He says caffeine, but it is loosely written, and it may be caffeine in beverage form, or otherwise.

Q. Does the author there distinctly state as a diuretic?

A. Yes. sir; he so states.

RE-DIRECT EXAMINATION
BY MR. SIZER:

Q. How much did you say, seven-tenths or eight-tenths of a gram would be in grains?

A. Well, a gram is fifteen grains and nine-tenths would be about ten and a half.

Q. And eight-tenths would be what?

A. Would be twelve grains, I beg your pardon for not answering Mr. Miller correctly mathematically.

Q. You said on cross-examination that the word "poison" in works of toxicology is used in a restricted sense. Explain what you mean by that?

A. Strictly speaking in pharmacology, where drugs are used upon healthy animals for experiment, everything that is done to them is a poison, because it changes the normal, light, and sunshine,—the picking-up of a guinea pig in your arm and dropping in ten drops of distilled drops of distilled water is a poison, because it is foreign to that animal—

Q. You say that these statements which Mr. Miller quoted from your book as to the effect of caffeine upon the heart and so forth, was based upon laboratory experiments You mean that these experiments were conducted by yourself, or explain whether you mean that you read of them in the literature?

A. Experiments I have read of. I have not done any laboratory experimenting since my old days in Paris.

Q. Were those experiments conducted on animals by the application of caffeine directly to the muscles?

A. I should judge from the context yes, to judge from the context, yes.

Q. And the effects of caffeine as applied directly to the muscles, you say would be different from what it would be when taken into the mouth?

A. A difference of quality—a difference of quantity—

Q. Did any physician observe your symptoms at the time you took those 42 grains of caffeine?

A. Yes, sir.

Q. Well, who was that?

A. Doctor Satterthwait.

Q. Did he have any instrament there by which he recorded your heart beat?

A. He did.

Q. And things of that kind?

A. Yes, sir.

RE-CROSS-EXAMINATION.

BY MR. MILLER:

Q. What is the difference in the qualitative effect by the administration of this drug into the stomach where it is absorbed into the blood, and injecting it into the blood?

A. You have the changes that go on with almost all chemical substances in the blood. There is a breaking down in the blood or in the organ of almost every chemical substance that goes into the body. It is not known in a great many instances where these changes take place, and it is unlikely that a loosely-held chemical combination like caffeine which will disassociate even with water, is likely

to pass unchanged into the blood and reach the muscle with any great degree of energy and produce any great result.

Q. Have you any authority for that statement as respects caffeine?

A. We know that chemically it is a very unstable substance, and it disassociates very rapidly.

Q. Kindly give us the authority for that statement as respects the blood.

A. There is reasoning by analogy that a substance which breaks up easily, even in water, is not likely to go through the complex fibers of the body without change. It would be extremely improbable if it did it.

Q. Can you point us to any reputable authority for that statement as respects caffeine, the action of caffeine when it is put into the blood stream?

A. We only know the end results—that it is excreted probably as xanthine products.

Q. That is based on literature and experiments?

A. Yes, sir; but where the change takes place I presume no pharmacologist has ever put his finger.

Q. Do I understand you to state that caffeine is readily disassociated in water?

A. I am speaking of the alkaloid.

Q. Of the alkaloid?

A. Yes, sir.

Q. Now, will you give us the authority on that point?

A. It is so stated, I think in most of the books.

Q. Well, just give us a few of them.

A. I think if you will turn to the companion volume of that pharmacology and theapeutic annual and materia medica you will find the statement and I think any authority will confirm it. It is a statement that is common in all books, just like a great many other common statements, and it is very hard to get their origin.

Q. Are you referring to citrate of caffeine or the alkaloid itself?

A. To the alkaloid.

Q. And the only authority you care to state is that you think that appeared in the companion of your own production?

A. Yes, sir; I think you will find it is said in there because I think you will find it stated in other books. I am sure I did not devolve that statement out of my own brain.

Q. Is not the companion you speak of the edition I have of 1907, or 1906?

A. They were both printed the same year.

Q. If it is in one, it is in the other?

A. You have a copy of the United States and the National Dispensatories and you could easily see whether my statement is correct or not. I believe it to be correct.

Q. Well, we think it is incorrect, but I am asking you about your book, if it is found in one edition it would be found in the other?

A. Well, I believe that to be correct; yes, sir.

(Whereupon a short recess was taken.)

(AFTER RECESS.)

Mr. Miller: Doctor Wilcox desires to make a correction in one of his answers.

DR. REYNOLD WEBB WILCOX,

recalled as a witness herein, resumed the stand and testified as follows:

REDIRECT EXAMINATION,

BY MR. SIZER:

Q. Do you desire to make any correction of a statement you made?

A. I do. Your Honor, I unwittingly made an error in my testimony which I desire to correct. On reference to the Dispensatory I find I was in error and that caffeine is disassociated from water, especially in the presence of the salts, the citrate alkaloid. That was a slip of my memory.

RE-CROSS EXAMINATION,

BY MR. MILLER:

Q. So that those statements of yours that were based on the assumption that it was readily disassociated were incorrect in so far as they were based on that assumption?

A. They were incorrect in so far as based on the relative case of disassociation of caffeine as a salt. They do not exclude the general principle that complex alkaloid disassociates in the blood stream and other places. The statement is relatively of less value in connection with the salts.

Q. Is strychnia when taken excreted as strychnia?

A. That is a question I am not prepared to answer. The difficulty of determining that is the small amounts in which strychnia is taken and which renders it difficult to get it back from the urea.

Q. I want to get back to a question. What is the difference in physiological action between the introduction of caffeine or caffeine citrate into the blood taken into the stomach and having it absorbed into the body — what is the difference physiologically, if any?

A. I think your question is not clear.

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Q. I ask you whether or not there is any difference from the standpoint of the physiologist as to the action of caffeine, whether it be administered by way of mouth in so far as the blood and muscles are concerned or whether it be injected into the blood or into the muscles, and if so, tell us what it consists of.

A. There are three things concerned. If you inject it directly into the muscles, you get a local effect, and also you get the mechanical effect of the puncture of the needle in the muscle, which will of itself produce contraction. If you inject it into the blood directly, you have an effect of less degree than injecting it directly into the muscles. If you take it by mouth and it passes through the stomach and is subjected to the action of the digestive fluid, you have still a less quantitative effect and quite likely a less qualitative effect.

Q. The effect is purely one of degree?

A. Purely one of the degree with the possibility of change before it reaches the muscle when it goes by way of mouth.

Q. You say with a possibility of change, that means you do not know?

A. It is approximately a reduction to xanthine bodies, takes place in the blood. As I said on cross-examination, nobody has put his finger on where that change takes place.

Q. If there be a change in the xanthine bodies, do those bodies act on the muscles?

A. Presumably they do.

(Witness excused.)

DR. THOMAS E. SATTERTHWAITE,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you a practicing physician?

A. I am.

Q. Of how many years experience?

A. Forty-four.

Q. Where do you live?

A. New York City.

Q. Do you know W. R. Wilcox, who just testified?

A. I know Doctor R. W. Wilcox.

Q. Were you present and attending Doctor Wilcox a

few days ago at the time he took a large quantity of caffeine, that he has testified about?

A. I was.

Q. For what purpose were you there?

A. I was asked by him to test the action produced on his circulation and respiration by taking a certain amount of caffeine.

Q. You were present when he took the doses?

A. I was.

Q. What were the respective doses and the respective intervals between which he took them?

A. Forty-two grains. The first dose was a dose of ten and a half grains.

Q. At what hour did he take that?

A. I shall have to refer to my notes. The first dose was taken at 3:04 in the afternoon.

Q. And the second dose?

A. Was taken at 3:27.

Q. What was the amount of that?

A. Twenty-one grains was the second dose and ten and a half grains the first dose.

Q. What was the next dose and when taken?

A. The next dose was ten and a half grains, taken at 3:54.

Q. And the next dose?

A. That was the last dose.

Q. Did you have an instrument there by which you recorded Doctor Wilcox' heart action before he commenced taking and while he was taking?

A. I had an instrument by which I took the control, as we call it, of the action of the heart and the blood vessels combined, in each instance prior to his taking the drug.

Q. For how long after he had taken the caffeine did you continue to take these records?

A. I took the records twenty minutes after the first dose, at 3:24. At the second dose of twenty-one grains, I allowed an interval of twenty minutes to elapse before taking the tracing, and the third I allowed another twenty minutes to elapse before I took the tracing.

Q. The last tracing was twenty minutes after the last dose?

A. Exactly.

Q. Without going into the details of the experiment, unless asked on cross-examination, what effect did you observe produced on Doctor Wilcox' heart action by the doses he had taken?

A. The result of the first amount of caffeine alkaloid was that the force of the heart and at the same time the

muscles, by the methods I took, show that the force of the heart plus that of the vessels, — showed that it increased the regularity of the heart; that is, it removed the irregularities in force to a considerable extent.

Q. What was the difference in the force and strength of the heart?

A. Increased it.

Q. Now, the next one?

A. The next effect produced was a sudden rise in the pulse to 84, and the respiration also rose to 24. The normal pulse beat is 72 and the normal respiration 16 — ranging to 24.

Now, the result of the second dose, the twenty-one grains, only one out of seven beats was deficient in strength showing a remarkable increase in the strength.

Q. How did that rise in the temperature?

A. Not temperature.

Q. Didn't you say there was a rise in the temperature?

A. No, sir; there was no change in the temperature.

Q. What was that?

A. There was a rise in the pulse rate.

Q. How long did that rise continue?

A. That fell within an hour to sixty.

Q. Is that normal or not?

A. It is normal for the subject.

Q. You have known Doctor Wilcox a long time?

A. A long time.

Q. What was the condition you found on the next — that was, after the final dosage, after this 21 grains?

A. After this 21 grains had been given at 3:27, the final dose was given at 3.54. Afterwards the pulse fell to 60, and the respiration which had been 24, fell to 16, natural and normal respiration, natural and normal individual.

Q. What would be the conclusions you draw from the observation as to the action of caffeine on the heart taken in quantities in which Doctor Wilcox took it?

A. The conclusion of this series of three experiments was that the pulse rate rose first to 84, — first to 70 and then to 84, and the respiration increased a little, but with the last dose it fell to normal, and the respiration fell to normal. At the same time at the end the irregularity in the force of the pulse was eliminated. It was practically of even force.

Q. I believe you say you practiced medicine for a number of years?

A. Yes, sir.

Q. Have you had occasion in your practice to observe the effects of the use of caffeine in the form of beverages

on your patients and acquaintances?

A. I have, of course, done so.

Q. As taken in the form of beverages and moderate quantities, what effects are produced by the use of caffeine?

Mr. Miller: I object to the form of the question because it does not state what the moderate quantity is.

The Court: Let the witness define what he means when he uses the term "moderate quantity."

Mr. Sizer: I was going to put that in the next question, but I will let him answer that in this question.

BY MR. SIZER:

Q. In your answer state what you mean by "moderate quantity" to be taken in the form of beverage, per day.

A. I think a moderate amount of caffeine to be taken in the beverages would be five or six grains per day.

Q. And the effect of that would be what?

A. I think the effect would not be harmful; it would be agreeable and quite stimulating.

Q. In the case of excessive quantities of caffeine being taken, are the results permanent or temporary?

A. I have known of no permanent ill effects from the taking of caffeine in any kind of dose.

Q. Do you personally use caffeine?

A. Yes, sir.

Q. In what kind of beverages?

A. Coffee and tea.

Q. For how long have you done so?

A. All my life, since I was ten years old, I suppose.

Q. In what quantities?

A. I always take one or two cups of coffee in the morning, sometimes a cup after dinner, coffee in the evenings, not always.

Q. Has this use of caffeine in the form of beverages ever affected your health in any way so far as you could observe?

A. I think there are occasionally times when a cup of coffee, if taken stronger than usual, will increase nervousness a little.

Q. Is that the only effect it has ever had on you personally?

A. It has nothing but a temporary effect on me.

Q. Have you had occasion in the course of prescribing for your patients, to recommend the discontinuance of tea or coffee for any reason, and did you have any difficulty in inducing them to discontinue?

A. None whatever.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. To what did you ascribe the nervousness due to the taking of the extra strong cup of coffee?

A. I think it is a nerve stimulant.

Q. What is a nerve stimulant?

A. Something that makes the cerebro-spinal system more active; that is, more active, gives an increased tone to your muscles.

Q. I ask you what substance does that.

A. Substance?

Q. Yes — what substance are you talking about?

A. Caffeine.

Q. That is what I wanted. Are you a member of the American Physiological Society?

A. No, sir.

Q. Are you a member of the Society of Pharmacology and Experimental Therapeutics?

A. No, sir; I am not a pharmacist or pharmacologist.

Q. You do not profess to qualify as either?

Q. You do not qualify as a pharmacologist or physiologist?

A. No, sir.

Q. Now, as a physician, what do you say might be the result of the increased blood pressure over the normal?

A. The subject has not been brought up and I have not alluded to it.

Q. I thought you said there was a rise in blood pressure in Doctor Wilcox' case.

A. A rise of interference, not of blood pressure. As we talk of it by blood pressure, it is taken by an instrument and I made no such test.

Q. You didn't make any test?

A. I made a test by the graphic method but not by the blood pressure test.

Q. You would not undertake to say whether there was a rise in blood pressure or not?

A. I would like to explain that I have not made any test as to the blood pressure, except by the graphic method which is not the method commonly employed for blood pressure.

Q. Then, based on that experiment, you would not want to state whether there was any increase in blood pressure or not, because it is not reliable?

A. It is reliable, but so far as that is concerned, I would be willing to state that there is an increase in blood pressure.

Q. Stating that there is an increase in blood pressure,

I ask you if that of itself may not cause exhaustion of the heart.

A. Well, the matter of blood pressure in this case is a temporary matter. If it were continued, it would.

Q. Then it is possible for it to do so?

A. If it were continued.

Q. And it may cause edema of the heart muscles?

A. That I do not know anything about. I never knew it to.

Q. You are not prepared to answer? Does not a continuance of high blood pressure cause arterial degeneration which is changes in the blood vessels? In other words, it produces a thickening?

A. It produces a thickening in the blood vessel, but whether it produces arterial degeneration is a question that is undecided.

Q. By thickening you mean arteriosclerosis?

A. One form of arteriosclerosis is produced by continued high pressure.

Q. A thickening of the artery?

A. Yes, sir.

Q. Now, what character of instrument was this that you say you used in making this test?

A. Shall I show it? I have a diagram of it.

Q. Yes, or you can tell us briefly. If you give the name of the test we will probably recognize it.

Mr. Sizer: We said it was the graphic test.

A. There is no diagram of it in existence. This is an instrument devised by myself and it has never been published. I am preparing to publish it now and I think I can show it. It consists of standing on an ordinary office or bathroom scale. The person who is to be tested stands on the platform scales as if he were going to be weighed. The impulses of the heart and vessels course through the body to the feet and they are in turn carried to the platform, and from the platform through the upright up to here where there is a pointer like the pointer used for the purposes of weighing only on that pin is put a large long pointer which records the rate and the force and the regularity of the heart beat on a drum — moving drum, the ordinary drum used in physiological laboratories; a couple of varieties of them are used, — actuated by a clock, so that as the person stands on the scale the dial automatically registers the heart action by the communication of the heart's force to the feet and to the platform and up to this lever. Anyone who stands on that bathroom scale by looking at the dial or the oscillations of the pointer can see them. That is the idea, simply carrying that idea out to move the drum and

on the paper register the three points that I have spoken of. At the same times we have another marker running with it which registers the time on the dial so that you can count from the chart the pulse.

Q. Will you file that illustration as Exhibit No. 1 with your testimony?

A. I will file it; I have it marked as Exhibit "A".

Q. That will do; let it go in that way.

(Document received in evidence.)

A. All right.

Q. Did you make any experiment with Coca-Cola?

A. No, sir; I have not.

The Court: Does the subject have to stand barefooted on this scale?

The Witness: No, sir, not necessarily. The pulse would be communicated perfectly well through the shoe.

BY MR. MILLER:

Q. Have you ever compared the method that you have devised which you say has not yet been given out to the world with the standard methods?

A. I have used most of the standard methods.

Q. I asked you whether or not you have ever made a comparison on the same patient of your method with what are recognized as the standard methods by your profession.

A. I use some of the methods in conjunction with this. That is, this instrument is designed to take the jugular and the liver pulse and the movements of the heart, all of which are taken by instruments somewhat different but are used in connection with mine. My instrument is one to automatically make the record. I am working now on several instruments used in connection with mine.

Q. You have never compared the standard methods with your methods to ascertain what if any difference there would be in the results, have you?

A. I have put the tracings of other instruments alongside of mine on the drum, yes.

Q. My simple question was whether you ever had compared the others with yours to ascertain the difference, if any, in results, and if so, on the same patient, tell us what the difference was.

A. There is no difference in the time or in the waves that are produced, except that each instrument has its own particular way of registering, the same way the electric cardiac machine — the waves are shown in some different way.

Q. My question is whether or not you have ever compared your method with other methods on one or many pa-

tients to ascertain the difference in the results, if any.

A. I have not undertaken any series of comparisons. I am working on that now.

Q. Have you written a book on caffeine effects, or that deals with caffeine as a drug?

A. I have alluded to it in a book of mine on diseases of the heart and aorta.

Q. Have you that book with you?

A. I have.

Mr. Miller: I would be glad to have that passed to me. I am going to ask leave to re-examine this witness and recall this witness.

Mr. Sizer: You can examine the book and if you desire to recall the Doctor, let him know so that he won't leave.

The Court: There will be thirty minutes before adjournment and some one of you can examine the book.

(Witness temporarily excused.)

DR. HAROLD N. MOYER,

the next witness called on behalf on the claimant and intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You are a practicing physician?

A. Yes, sir.

Q. Have you written any books?

A. No, sir.

Q. I thought if you had, I would get you to hand them to counsel now. Where do you reside?

A. Chicago, Illinois.

Q. How long have you been practicing?

A. Thirty-one years.

Q. State your medical education and qualifications.

A. I was educated at Rush Medical College, was graduated from there in the medical department of the Chicago University; then I had service in the Illinois Eastern Hospital for the Insane for three years; after that I was in Europe, studied two years at the Universities of Vienna, Heidelberg, Berlin, and after that I returned to Chicago and became connected with the Rush Medical College as teacher, first of the department of Physiology, and then of the department of Nervous Diseases, and continued in that connection until the early nineties. My experience as a practitioner comprehends my hospital service and my private practice. I have been connected with our large public

hospital, called the Cook County Hospital, the largest one we have, with the St. Luke's Hospital, with the Columbus Hospital, and then my private practice; and I will state that since 1892, I have restricted my practice almost exclusively to nervous mental diseases, that is, insanity and nervous diseases.

Q. You have made a specialty of that particular branch of the science?

A. Since 1892.

Q. Are you a member of any medical societies, and if so, what?

A. I am a member of the local society in Chicago. I have been President of the Chicago Society, also the Illinois State Medical Society. I am a member of the American Neurological Association, an association of physicians of national extent, that is, it is a national association for those who devote attention to nervous diseases.

Q. What is the effect of caffeine on the nervous system?

A. It is a nerve stimulant.

Q. Is a nerve stimulant of itself injurious or detrimental to health?

A. Not necessarily.

Q. Does the question of whether it is detrimental to health depend upon the degree of stimulation?

Mr. Miller: I object to that. I think it is suggestive.

Mr. Sizer: I want to get that point in.

BY MR. SIZER:

Q. Does the question of whether the effect of stimulation is detrimental or not depend or not upon the degree of stimulation?

Mr. Miller: That is open to the same objection, it suggests the answer.

The Court: I think the witness can tell what the effect is. I don't see any other way of directing the witness's attention to the point that is desired, and I don't see your objection.

Mr. Miller: Note an exception.

The Witness: Yes, sir.

BY MR. SIZER:

Q. Is caffeine a normal or abnormal stimulant for the nervous system?

Mr. Miller: I submit he is not qualified to speak on that point.

The Court: I overrule the objection.

The Witness: It is as near a normal stimulant as we have.

BY MR. SIZER:

Q. What would be the effect of doses of caffeine or quantities of caffeine, taken in the form of beverages from day to day, on the nervous system, the quantities being moderate, and in your answer you can state what you mean by a moderate quantity.

A. By moderate quantities I would say beverages containing somewhere from four to six grains of caffeine taken in a single day, would be mildly tonic or stimulating to the nervous system, and would not have an unpleasant or uncomfortable result in the average person.

Q. What would be the effect on the nervous system of increasing the quantities from four to six grains a day to something more?

A. The stimulating effect would probably be greater. The number of persons who would experience discomfort or uneasiness from such larger doses, would be increased, but to how large a dose or how many, I could not say, and it might be that they would feel apparently benefited by it.

Q. What quantities would you say could be taken?

A. I should say up to eight or ten grains could be taken.

Q. In case a person takes a sufficient quantity of caffeine in this manner to unduly stimulate the nervous system or to produce these symptoms you speak of, would that result be experienced be of a temporary nature, or a permanent nature?

Mr. Miller: I object to that. He can tell the facts.

Mr. Sizer: He has described the effects, and I asked him would they be permanent or temporary in his opinion as an expert.

The Court: The objection is overruled. He may show in his answer what he means by temporary or permanent, if there is any doubt about that.

The Witness: The effect of beverages of that character in those doses are temporary and not permanent.

BY MR. SIZER:

Q. What do you mean by temporary. How long would the effects of the excessive dose and undue stimulation continue?

A. Only so long as the substance remained in the system. It is not very long, a few hours.

Q. A few hours?

A. Yes, sir.

Q. Does the use of caffeine in the form of beverages tend to form any habit?

A. No, sir; it is not habit-forming.

Q. Have you had occasion in your practice to prescribe the discontinuance of caffeine-containing beverages from time to time?

A. Occasionally.

Q. Do you experience difficulty in inducing the patients to discontinue their use when prescribed?

A. No, sir; I have never had any difficulty in getting them to quit.

Q. Is the effect of caffeine-containing beverages on the nervous systems of younger people necessarily or any greater than on older people, that is, in proportionate quantities?

A. Do you mean by young people, children or youths?

Q. Make your answer to cover both.

A. The effect on young persons, meaning by that those 14 to 20, is not different from what it is in those more than that age. The unusual exceptional effects of caffeine beverages are more noticeable in those who are from 25 to 40 — in that period of life — than in the young, the young tolerate these beverages rather better than those further along in life.

Q. Are caffeine-containing beverages prescribed as part of the diet in the hospitals with which you are connected?

Mr. Miller: I object to that as irrelevant.

The Court: The objection is overruled.

The Witness: They are a part of the diet in all the hospitals with which I am connected, that is, they are served to throughout the hospital unless restricted by the physician's orders.

BY MR. SIZER:

Q. And that restriction would apply to specific cases only?

A. Oh, yes, just to specific cases.

Q. Except when restricted by a physician in charge of the particular case, is there any limitation put on the amount given to patients other than what they want?

A. Well, yes, I think the general rule in the hospital is to restrict them to the quantity that is served, that is, they get a cup of tea or coffee and that is usually what they get.

Q. Does the use of caffeine ever result in insanity or in disordered mind?

A. Not in my expierence.

Q. You are familiar with the mixture Coca-Cola, are you?

A. Yes, sir.

Q. What is the effect of the syrup and the other ingredients contained in the Coca-Cola syrup in preventing or discouraging of the taking of too much of the substances?

The Court: That is irrelevant.

BY MR. SIZER:

Q. What effect would the other ingredients contained in the Coca-Cola syrup, for instance the sugar, among other things, have on the quantity of the syrup that could be taken or that ordinarily be taken?

A. I think it would limit the quantity that is ordinarily taken. In the first place, because it is sweet, and then sugar is a food, and it is rather filling, that amount of syrup, in common language.

Mr. Miller: Now, I object to that answer because this witness has not qualified himself as a practitioner of medicine but only as a nerve specialist, and he is not prepared to say, I submit, as to the administration of these other substances. If it is conceded that I can cross-examine on these things, all right.

The Court: The question of cross-examination is one that will come up at the proper time and be disposed of. The question now is as to the admissibility of this evidence, and the objection is that he is not qualified. I understand the witness to state that he was only a specialist of recent years, but before that had been a general practitioner, and I overrule the objection to the answer.

Mr. Miller: Now, before taking up the cross-examination, I wish to ask the gentleman who was on the stand last, who wrote that book, and I will ask that this witness be temporarily excused.

(Witness temporarily excused.)

DR. THOMAS E. SATTERTHWAITE,
recalled for further

CROSS-EXAMINATION,
BY MR. MILLER:

Q. I find in your book this statement as respects caffeine, in the copy which you so kindly furnished: "Primarily caffeine produces cardiac contractions". That means of the heart?

A. Contraction.

Q. "Leading in large doses and with some persons to spasms and even paralysis".

That is true?

A. I believe that to be true.

Q. "Secondarily, its effects are depressing while it has proved an uncertain diuretic in my opinion".

A. Yes, sir.

Q. Those statements are substantially correct?

A. Yes, sir.

Q. This work is entitled "Diseases of the Heart and Aorta"?

A. Yes, sir.

Q. And was written for the practicing physician?

A. Yes, sir.

BY MR. SIZER:

Q. Is there any harm or detriment to the health caused by contraction of the heart?

A. Not necessarily, the heart is contracting all the time.

DR. HAROLD N. MOYER,
then resumed the stand for

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What do you mean by normal stimulant, as used by you in your examination in chief?

A. I did not use those exact words.

Q. Didn't you state that caffeine was as near related to a normal stimulant — that is caffeine beverages — as any other beverage?

A. I said they were as near normal stimulants as we have.

Q. I ask what you mean by normal stimulant?

A. I mean by normal stimulant foods of various kinds, and particularly those foods that are derived from meat, such as the meat juices and extracts. They are nerve stimulants, but these caffeine bodies, so far as my experience goes, are very like those.

Q. That is what you mean by saying a normal stimulant, extracted matter from the meat which you can press out?

A. That raises an entirely different question.

Q. Do you mean xanthine products from the meat?

A. I did not say that.

Q. Do you mean it?

A. I am not an authority on xanthine bodies.

Q. Then you are not much of an authority on what is a normal stimulant?

A. That may be possible. I am giving you the best I have.

Q. Why is the restriction of one cup of coffee or tea at meal times put on patients that you referred to when you stated that there was a restriction?

A. I said I thought in the practice of the hospital there was a restriction, not specifically, but I know that food is served in hospitals in certain quantities to patients and

they rarely get more than a cup of tea or a large cup of coffee at meals, and they have to ask for more if they get it. Now, at the Cook County Hospital, the County has a much larger cup, they have a tin cup holding about two-thirds of a pint. That is much larger. That is a big pauper hospital in Chicago.

Q. You have not answered the question as to why the restriction was placed on the use of these beverages?

A. Oh yes, I have. I have answered it quite as accurately as I can. The effects of hospital administration dietary is what substantially restricts it. There is not a pot of coffee on the table or bedside of the patient for him to take as much as he wants, as it commonly the case in domestic practice. That is what limits the quantity.

Q. Have you ever had any experience in the administration of Coca-Cola?

A. I have taken some myself.

Q. You have not prescribed it for patients?

A. I never prescribed it for patients.

Q. Now, when you state if the patient gets from four to six grains a day in beverages it may not have any harmful effect on the nerves, you mean, of course, in beverages such as coffee and tea where you have seen it served, is that right?

A. I mean caffeine-containing beverages.

Q. Suppose he received it also in his bread; would that make any difference as to whether it was cooked up with the bread or taken in a beverage?

A. You mean caffeine cooked up, baked up in the bread?

Q. Yes.

A. I have not any experience with such preparations.

Q. Can you conceive of any different effect that the caffeine would have on the nerves if a man would eat it in the form of bread, mixed up and cooked up with bread, than when it was distributed in or served with a drink?

A. I do not know whether it could have any different effect or not.

Q. You are not prepared to answer that?

A. I said I didn't know.

Q. These symptoms that you have described as respects the muscles, and whether or not they are permanent or temporary, you acquire that knowledge by simply observing the persons who drank coffee or tea?

A. I have not said a word about muscles.

Q. I thought you said the effects or symptoms, which would be the effects — would be temporary rather than permanent.

A. That is what I said.

Q. You do not attempt to deal with the muscles at all but merely the nerves?

A. I have so far only spoken of the effect on the nervous system.

Q. Are those effects the effects that you have observed in persons who drank tea and coffee?

A. Yes, sir; the effects on the nervous system with patients I have had. I tried to find out what the tea and coffee did to them.

Q. And the effect was that it made them more nervous?

A. No.

Q. Didn't you use that expression a while ago?

A. No, sir.

Q. Did you say that the caffeine in those drinks exhausted or stimulated the nerves?

A. I said it stimulated the nervous system.

Q. Did you say that that includes the spinal cord?

A. It includes the entire nervous system; the cord, the brain and the nerves.

Q. Did you ever make any test to ascertain how long the cord was stimulated as the result of the administration of caffeine in this way?

A. Yes, I have.

Q. What test did you make?

A. I tested it on myself.

Q. How did you make the test on yourself to see whether the cord was stimulated?

A. I tried this Coca-Cola syrup in some long walks I made. On one occasion I started to take a ten-mile walk and after the first mile — at the end of it I was moderately muscularly tired. I was not exhausted but I felt as if I would like to sit down. Then I took an ounce of this Coca-Cola syrup and continued at the same gait as fast as I could and the pick-up, the tonic effect of that on my muscular system — obviously the spinal cord was involved in it — was very marked and I finished the next five miles strong and going easy, and so far as I was concerned I thought it was a pretty good stimulant to the muscles and spinal cord.

Q. I grant all you have said, but I asked you whether you ever made any observations to ascertain from your personal knowledge or anybody else, how long the effects of stimulation were present.

A. Yes, I think I did. I think that was present a good hour and a half. It lasted fully an hour and a half.

Q. You judge that only by your own feeling, not anything else?

A. Oh, yes; just by the way I felt.

Q. That is the extent of your observation to ascertain how long the effects of caffeine as a stimulant remained?

A. That is all.

Q. Do you know relatively what is the action of caffeine-containing beverages or caffeine, on the central nervous system and on the spinal cord, especially?

A. As distinguished from the nervous system as a whole, the cord alone?

Q. Yes.

A. No, sir, I do not, except I think it is tonic and moderately stimulating.

Q. That consists only of that experiment you made on yourself?

A. I have an opinion about it apart from that experiment but you asked me if I had ever tried anything and I had tried.

Q. Is it not true that the extent of the stimulation and the effect of it depends on the age and the size and the condition of the person to whom it is administered?

A. And the dose.

Q. Does it not depend first and regardless of the dose, on the sex, age and size?

A. Regardless of the dose? Oh, no.

Q. Do you mean to say that a child eight or ten years old, taking three or four grains of caffeine, would not be affected any more than a person who was twenty-five?

A. He might not be affected so much.

Q. I ask you what you think as a scientific man.

A. That is exactly what I am telling, what I think as a scientific man.

Q. Then you think that the effect on the child would not be any different from its effect on a grown person?

A. That is not what I said.

Q. What do you mean?

A. That it might not be so marked in the child as in the grown-up person.

Q. In your opinion, would it or not be?

A. I could not tell apart from the dose and apart from individual conditions.

Q. I have spoken of taking the same dose.

A. No, you didn't; I beg your pardon.

Q. Yes, I did.

The Court: He said independently of the dose.

The Witness: I didn't understand it. Give the question again.

BY MR. MILLER:

Q. I asked you to take the same dose in grains and give

it to a child.

A. Of what age?

Q. Say seven, eight, nine to ten years of age.

A. There is a great difference between seven and ten.

Q. What would that be as respects the administration of caffeine?

A. I think that caffeinated beverages are not wholesome for children. I mean by that, children of seven and under.

Q. You said there was a great deal of difference between seven and eight years.

A. No, sir; I said seven and ten. I say there is a period of three years there and a child of ten years is considerably nearer grown than a child of seven.

Q. If I understood you in chief, you stated that after fourteen there was not any marked difference between a person who received caffeine and a person of more mature years, as to its effect on the nervous system.

A. I think the nervous system from fourteen to twenty-one years is more likely to tolerate caffeine beverages than between forty and fifty years.

Q. Why did you draw the line at fourteen?

A. Approximately it is the period when children pass into the period of youth, fairly well grown, and they become more nearly like the adult as far as the action on the nervous system is concerned.

Thereupon an adjournment was taken until Wednesday, March 29, 1911, at nine o'clock A. M.

Chattanooga, Tennessee,
Wednesday, March 29, 1911,
Nine o'clock A. M.

Court met pursuant to adjournment.

Apparances: Same as before.

Mr. Miller: On yesterday morning I was credited by distinguished counsel with having asked for a list of authorities which recommended the use of caffeine-containing beverages in articles of diet, and it was stated that the list would be furnished which it was desired to be read in the record. That was the language of counsel. I was not prepared to speak as to what had taken place but I find on re-reading the record that this is the question that I did ask: "Q. Are you acquainted with any reputable treatises that advocate the use of caffeine, I mean medical treatises that advocate the use of caffine for general con-

sumption by general individuals?" That is the question I asked and I was furnished last evening with a list of authorities dating from 1863, some dealing with the history of coffee, and I submit that my question did not call for anything except treatises which recommend or advocate the use of caffeine. Hence I submit that this list of authorities is not responsive.

The Court: Do they advocate the use of coffee?

Mr. Miller: Well, that depends on cross-examination. They deal with the use of coffee, but my question was ——

The Court: I catch the question, but whether the books are the authorities that have been referred to? Is the point you are making the difference between caffeine and coffee?

Mr. Miller: To some extent.

The Court: You did not call for books that recommended coffee; you called for caffeine as an article of diet?

Mr. Miller: That was my question. I said caffeine for general consumption by individuals and I submit there is quite difference, as I think has been demonstrated by your Honor's ruling out certain articles because of certain other constituents. I think there is quite a difference between treatises which advocates the use of caffeine and treatises, if there be any, which advocates the use of caffeine-containing beverages. Hence I insist that this list was submitted was not in response to any question of mine.

The Court: The converse does not exactly follow. A thing which advocates an article containing two substances might not advocate the use of the separate substances. What do you say about that, Mr. Sizer?

Mr. Sizer: As I understand, and as I think the witness understood the question, he was asked to furnish authorities which advoate the use of substances containing caffeine and I suppose the authorities which he produced were in answer to that question. Counsel may cross-examine the witness further if he wants to. The witness has produced the authorities which as he understands was responsive to the question, and whether or not it is responsive is a matter for cross-examination.

The Court: He may show what authorities he produces and the purport as he understands them, and then if exception is made I sustain the exception on the ground that it is not responsive to the question.

Mr. Miller: I do make the objection. The text shows that I was asking about caffeine as a drug.

The Court: I sustain the exception and exclude the answer.

Mr. Sizer: I do not know that these authorities offered

by Doctor Vaughan do not advocate the use of caffeine, but I say my understanding of the question was and I assume it was the understanding of the witness that counsel wanted anything that recommended any article of food containing caffeine.

The Court: That is not the literal question. A man may recommend many things containing caffeine because there were other things, but I think the fair purport of that question was to get at authorities that recommended caffeine as such, or articles because they contain caffeine.

Mr. Sizer: The first authority, Bunge or Physiological and Pathological Chemistry, does recommend the use of caffeine.

The Court: Then that is responsive.

Mr. Sizer: Shall I read what he says?

The Court: No; go through the list and limit the list to those which recommend caffeine, and then you may offer it again.

Mr. Sizer: In order that your Honor may see whether this is responsive I hand it to your Honor. Here is another in German; I do not know whether your Honor will want to read that or not.

Mr. Miller: I have had made for the purposes of the reporter and everybody else a literal translation of the authorities and if your Honor cares to look over them you may do so.

The Court: Counsel may hand me the list and wherever the list recommends caffeine or recommends substances on account of the caffeine in it, I think it is responsive to the fair purport of the question but when it does not I do not think it is. I will look over the list and rule on it later.

Mr. Miller: Now we will proceed with Dr. Meyer. I wish to say that we had reference to only three of these publications by pages; the others were hurled at us indiscriminately, and I have taken what I thought was the fair statement.

Mr. Sizer: We will go over the abstract by counsel and if there is anything else in the authorities that refer to the subject, we will add it and hand the list to your Honor.

DR. HORALD N. MOYER,

recalled as a witness herein, resumed the stand for further examination and testified as follows:

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What did you mean yesterday by the average person when you referred to the quantities of caffeine being ad-

ministered an average adult person or the average youth, or the average child?

A. I think I must have referred to the average adult. I could not average adults and children together.

Q. Why not?

A. Because I do not think they are quite comparable as to size and I also meant to exclude those who have an idiosyncrasy to caffeine beverages, that is not usual; meaning by idiosyncrasy where caffeine-containing beverages do not agree with that individual.

Q. Excluding young persons and confining ourselves to adults, the answer you gave as to the effect of increasing quantities from four to six grains on the nervous system is that the stimulating effect would probably be greater in the number who would experience discomfort and uneasiness. What would be the discomfort and uneasiness experienced?

A. From the use of caffeine in the adult?

Q. Yes.

A. My observations with caffeine have not been made on well people. The larger doses of caffeine have been made on sick people in hospitals. When we give about six to seven grains three times a day, that is, from 15 to 21 grains a day, those patients complained of feeling uncomfortable, some of them say they have a misery, that their head does not feel good, that they do not like that medicine and such expressions as that — caffeine is given as a diuretic in hospitals to sick people.

Q. You further say in that connection it might be that they would feel apparently benefited from it and by that I infer that the men would feel as the result of the caffeine differently from what is the real physical condition; that is to say, it is a stimulant or excitement which makes him feel different from normal and from what he in reality is. Is that correct or not?

A. I am not prepared to deny your inferences. You infer from those words those things and I cannot say you do not infer them.

Q. I ask you what you mean by saying that he might feel apparently that he was benefited, what did you mean when you said that?

A. What were the exact words?

Q. The exact words were these: "The stimulating effect would probably be greater on the number of persons who would experience discomfort or uneasiness from such larger doses, would be increased, but how large the dose or how many I could not say and it might be that they would feel apparently benefited by it."

A. What was the question to which that was an answer?

Q. The question was what would be the effect on the nervous system of increasing the quantity from four to six grains a day to something more?

A. Something above that.

Q. Yes.

A. I think when you get above six or seven grains a day there is often experienced some discomfort on the part of the people who take it. That is what that means.

Q. Now, I understand that part of your answer but it is the next part that I do not understand. "It might be that they would apparently feel benefited by it." Do you mean that they would be benefited or simply feel that they were benefited as compared with their true condition?

A. Benefited as compared with their true condition?

Q. Yes; what do you mean by using the term that they would feel apparently benefited by it?

A. Just what the words say. Apparently they would feel benefited; that is what it means and that is what I meant when I spoke of what I took myself, that I felt as if I was benefited by it.

Q. Do you know how long the caffeine remains in the system or its effects remain in the system, of your personal knowledge?

A. Yes, sir; I think a couple of hours, two or three.

Q. What test have you made to ascertain how long the effects of caffeine remain?

A. Only judging by my clinical experience from administering caffeine.

Q. Did you ever test for it in the urine after it was administered?

A. No, sir; never.

Q. Then you have administered it to patients and they have gone away and come back and you base your experience on what they told you as to the facts, has that been the extent of your experience?

A. No, sir. Most patients to whom I gave it did not go away, they stayed in bed in the hospital.

Q. What were the noticeable effects for, say, two hours afterwards?

A. Administering a considerable dose, as I said, they frequently complain of some uneasiness and discomfort, but it does not last more than an hour or two.

Q. That is, they do not complain for more than an hour or two?

A. Yes, that is about all.

Q. Now, about youths from fourteen to twenty. I asked you if it is not a fact that at or about the ages of fourteen

and fifteen humanity, particularly in females, is among the most nervous conditions, — the people are in the most nervous state in their lives.

A. No, sir.

Q. Are you acquainted with Doctor Hamilton's work on nervous diseases?

A. No, sir.

Q. You know Doctor Hamilton who is here?

A. Yes, sir.

Q. You have been engaged with him here, he is engaged by the Claimant in this case?

A. Yes, sir.

Q. He is recognized as a standard writer on nervous diseases?

A. He is recognized as a writer on nervous diseases.

Q. I read you from page ninety of Doctor Hamilton's work.

A. In that medical jurisprudence work?

Q. A system of legal medicine.

The Court: What is the object of reading this?

Mr. Miller: It is to show that at the age of fourteen humanity is at its most sensitive period.

The Court: Did this witness say that it is not so?

Mr. Miller: If he admits that is true I will not ask him, but I understood him to deny that, but to make it clear —

BY MR. MILLER:

Q. I will ask you if the age of fourteen is not among the most nervous periods of people's lives and particularly females?

A. I said no to that.

Q. I read to you from Doctor Hamilton's book:

"One of the critical points of life when the mental equilibrium is most sensitive to disturbance is that of pubescence" and that means puberty which is about fourteen years?

A. Yes, sir.

Q. You disagree with that statement by Dr. Hamilton?

A. No, sir.

Q. Do you agree that that is one of the most critical periods and one of the most nervous periods of human life?

A. Not the most nervous; it is the most critical. He does not say most nervous there, but most critical.

Q. He said it was most sensitive?

A. Yes, sir.

Q. Is not that the most susceptible period to an agency like caffeine?

A. No, sir; I think not.

Q. The statement is when the mental equilibrium is most sensitive of disturbing agencies?

A. Does it say anything about caffeine in there?

Q. No, sir, it does not say anything about strychnine or anything else, but the statement is confined to the period when the mental equilibrium is most sensitive to disturbing agencies and I ask you whether or not in your experience it is true that this period about which I have been talking and particularly in the female, is the one when the mental equilibrium is most sensitive to disturbing agencies.

A. True.

Q. Isn't it true that any disturbing agency or without any stimulation of nerves that the female, particularly at that period, is liable to attacks of hysteria, or hysterical attacks?

A. Yes; women or girls who are of a nervous temperament are liable during that period to hysterical attacks, — that may be so, later or earlier.

Q. Now, as to that condition, don't you know that a nervous person or one who is liable to nervous attacks, is liable to have increased nervous irritability or reflex action as the result of the administration of caffeine?

A. I would like to have the question read.

Mr. Miller: All right; read, him that question, Mr. Hacker.

(The question was read, as follows: "Now, as to that condition, don't you know that a nervous person or one who is liable to nervous attacks, is liable to have increased nervous irritability or reflex action as the result of the administration of caffeine?")

A. I would like to know in what dose. I might ask — well, it is a very general statement, I do not believe that one-tenth of a grain would do anything to a nervous person, or even perhaps a grain, but I am sure the administration of six or eight grains of caffeine to a very nervous person would not be good for him.

Q. How about two grains? You say a tenth of a grain, that you do not believe that a tenth of a grain would, and possibly one grain would not, how about two?

A. I doubt if two grains would be likely to do anything uncomfortable and many nervous patients would be benefited by it. It is not very generally good for very nervous people to take caffeine in large quantities.

Q. By "large quantities" do you mean in excess of the pharmacopoeial dose of one grain?

A. Is that the pharmacopoeia dose, one grain?

Q. Didn't you know that?

A. I have heard it stated, I know it, yes. I think that

they can take more than the pharmacopoeial dose — that is an absurd quantity, a small quantity.

Q. How is a nervous person such as a girl fourteen years old in normal health, benefited by the administration of caffeine in one or two-grain doses?

A. I don't know that she is. I would not claim that she was. I don't know that anybody is benefited by caffeine as far as I know absolutely. Might be just as well off without it. It makes you feel better, that is all.

Q. Now, looking again to an answer, you stated the young tolerated these beverages better than those further along in life. By "tolerate" you meant built up a tolerance against caffeine?

A. No. They take care of it better. In practice of nervous diseases we often run on to people that do not take or tolerate caffeine beverages very well. Most of these fall within the period of 35 to 50 years. It is not among the young. They do not come to you complaining of difficulties of disposing of caffeine beverages; it is those older in life that get where they say they can't take it without being uncomfortably affected by it, those are the ones.

Q. And by "tolerate" in that question ——

A. (Interrupting.) That is what I meant, what I have explained — they take care of it all right.

Q. To take care of it all right?

A. Yes, sir.

Q. To take care of it all right is what you mean?

A. In other words, I mean it did not disagree with them, by the word "tolerate."

Q. Can you take caffeine so as to affect the brain without at the same time affecting the spinal cord?

A. I don't see how you could. I guess you affect the whole body with it.

Q. Now food — when that is taken, that affects the brain but that does not render a person more nervous ordinarily?

A. It depends on the kind of food. There are certain foods that disagree with people and make them very nervous, and some disagree with their digestion, foods they ought to digest and make them very uncomfortable.

Q. I am speaking of the average person and when you take the normal food and the normal exercise, if the average person's brain is stimulated by the activity, by food, is there any corresponding reflex irritation or stimulation of the cord?

A. Why, of course there is. The cord is stimulated by food — it must be.

Q. How is that irritability manifested upon the taking

of food in normal quantities when a person takes normal exercise and rest?

A. A desire for exercise, a desire for activity; that is how it is shown.

Q. Does food taken in normal quantities affect a person in the same way as caffeine?

A. That I cannot say. I think there are constituents of fact — the effect from which is very similar to caffeine ——

Q. (Interrupting.) Well, what?

A. Well, the constituent I mean is the extractives that are contained particularly in meat foods, to some extent in others and in some vegetable foods.

Q. And by these extractives you do not mean food?

A. Yes, sir, the juice that is in it. The juice of the beefsteak.

Q. That which is cooked out in the cooking process or exuded?

A. There is not anything cooked out; it is cooked in.

Q. Well, it is caused to go to the surface?

A. Oh, you mean the taking out in the form of beef broth?

Q. Yes.

A. That is the stuff that is stimulating, more than the ordinary food.

Q. Are you an authority on foods or do you claim to be?

A. No, I do not think that I am an authority on foods. I would be very glad to give you any information on the subject I have, if you want it. I do not want to restrict the questions here in any way. If I have any information and you want it, I am glad to give it to you.

Q. Well, I want to know if you profess to be an authority on foods, or what is a food?

A. No.

Q. You do not mean, do you, Doctor, that the juice of meat and the extract of meat are the same?

A. I think I used it in about the same sense.

Q. You mean in that connection that they are the same, in the connection in which you used them?

A. Yes, sir; I mean the substances that are in meat—I suppose they are in the juice of the meat, that is what I mean.

Q. Are they not what you call the extractives?

A. I guess I would call them extractive — that is my own idea — extractives, nobody else's.

Q. And by caffeine-containing beverages, you refer to tea and coffee?

A. Tea, coffee, and I think it is mentioned in chocolate

also, that is caffeine is, and Coca-Cola is a beverage that seems to contain it.

Q. But your experinece with Coca-Cola is limited to yourself?

A. Well, I have known other people to use it.

Q. Extensively?

A. Of no, not very many; I have seen it drunk in our drug stores and places where they sell it.

Q. Now, referring again to females, isn't there likewise a critical period or a supersensitive period in the life of a female about 45 when they are extremely nervous?

A. I presume by female you mean a woman of that age?

Q. Yes, I am talking about humanity.

A. Well, there are females and women of that age.

Q. Yes, I undertood that. I am talking about people and I supposed you had been.

A. Well, I only want to be careful about it, that is all.

Q. What did you say?

A. I only wanted to be sure as to what you meant.

Q. Well, have you been talking about animals?

A. No, sir; not so far as I know up to date.

The Court: Well, that is immaterial.

BY MR. MILLER:

Q. I will ask you if in a female there is not a supersensitive period of, from 38 to 45 years?

A. Yes, sir.

Q. And when, in the language of Doctor Hamilton, the mental equilibrium is rendered unstable frequently by outside agencies?

A. Yes, that is an unduly sensitive period with women.

Q. Isn't it a fact that caffeine-containing beverages are often discontinued during such periods at the direction or behest of physicians?

A. Yes, sir; I think they are.

Q. It is also a fact, isn't it, Doctor, that during the period of pregnancy that a woman is very sensitive?

A. No, I think not. That is not so.

Q. Do you know how that is?

A. Yes, I do.

(Witness excused.)

The Court: I would like the transcript with the exact question you asked with reference to caffeine substances.

Mr. Miller: You will find it on page 1574.

The Court: I would like to have Chittenden on Nutrition of Man.

Mr. Sizer: We will have to get that — it was only quoted here.

The Court: All right.

Mr. Miller: He cites Chittenden, Sherman quotes from Chittenden.

The Court: Well, let me have Sherman then.

Mr. Sizer: We have Hutchinson also, if your Honor would like to have it.

The Court: Yes.

Mr. Sizer: I think the places are marked there.

Mr. Miller: Just pass up all of them.

Mr. Sizer: How was that?

Mr. Miller: I say, just pass all of them up to the Judge.

Mr. Sizer: Yes, I shall do that. I see some of them are not marked.

Mr. Miller: There is the coffee history.

Mr. Sizer: Yes, just pass that up.

Mr. Miller: And Hewitt.

Mr. Sizer: Does your Honor want this Bunge again?

The Court: You may add it to the list and let me have it. Page 1575 seems to be left out of this copy.

Mr. Miller: We have not page 1575 here.

The Court: His answer is at the bottom of page 1574 and the last part of it goes over on the next page.

Mr. Hirsch: Our copy came the same way.

Mr. Miller: Well, we will have your Honor supplied with page 1575.

DR. ALLEN McLEAN HAMILTON,

the next witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Please state your full name, Doctor, and your place of residence.

A. Allen McLean Hamilton, 1950 Madison avenue, New York.

Q. What is your profession?

A. Physicion.

Q. Please state when and where you educated in medicine, or took your medical course.

A. I graduated at the College of Physicians & Surgeons, Medical Department, Columbia University, in New York, in 1870.

Q. Have you made a special study in your profession, and state also with what institutions or hospitals you have been connected.

A. I have made a special study of clinical diseases of the mind and the nervous system. I practiced general medicine for several years, and for the past 35 years I have practically devoted most of my attention to those special subjects. I graduated and then entered a hospital in Brooklyn as interne for a year, and I came to New York and entered the out-door department of the New York hospital, the department of head and abdomen, seeing nervous diseases there and general diseases to some extent. I then was physician in charge of the New York State Hospital for diseases of nervous system. I was then attending physician of the Hudson River State Hospital at Poughkeepsie for the insane. I was attending physician for Reynold's Hospital for Idiots and Imbeciles. I was attending physician at the New York Hospital for nervous diseases and the hospital for the epileptic and paralytic—that is a city institution. I have been for the past thirty years attending and consulting physician at the hospital for the insane, Ward's Island, New York.

Q. Have you taught mental diseases in any institution?

A. Yes, sir; I was Professor of Clinical Psychiatry at the University of Medical School of New York. Also upon Medical Therapeutics at the College of Physicians & Surgeons in the year 1899.

Q. Have you written any books?

A. Yes, sir; I have sir. I taught this.

Q. Will you please give a list of them?

A. Yes, sir; I have written a book upon Clinical Psychiatry; upon Clinical Electrical Therepeutics. I have written a treatise upon medical Jurisprudence, and a second one in two volumes, one volume introduced here today, a book upon nervous diseases and a book on the Modern Treatment of Headaches, and a book on Railroad Accidents and Injuries, and their relation to the nervous system, and I have contributed frequently to medical literature in other directions.

Q. And among other things, did you take a prize on an article on some neurological subject?

Mr. Miller: I object to that.

Mr. Sizer: Maybe the Doctor has not retrograted as far as you.

Mr. Miller: I will agree to that, but I submit it is incompetent in this case.

The Witness: I will say that I never took a prize at Sunday School.

Mr. Miller: I submit it is immaterial.

The Court: I think it is competent.

The Witness: I took the first prize of the American

Medical Association for an essay upon the diseases of the lateral columns and the spinal cord in 1879.

BY MR. SIZER:

Q. Now, Doctor, please state just what medical society or societies of any kind you have been a member or connected.

A. I belong to the local societies of the county and the city, and I should say at one time I was Statistical Secretary of the Academy of Medicine of New York. I belong to the American Neurological Association. I organized and was President of the New York Psychiatorical Society.

Q. What does that mean?

A. It means the study of the diseased mind — it is really an interstate society, including the best men in Boston and Philadelphia and other cities. I am also a member of the American Neurological Association, an Association for the study of nervous diseases, and I am a Fellow of the Royal Society of Edinburgh.

Q. Have you made any study of the subject of caffeine-containing beverages.

A. Yes, sir; I have.

Q. And what opportunities have you had, Doctor, for studying that substance?

A. I have had my own experinece. I have had the experience of some of my friends, and I have had the experience derived from the examination and treatment of a large number, many thousand patients, both with private practice and in institutions which I have been connected with.

Q. Please state what your personal experience with the use of caffeine-containing beverages has been.

A. My experience is that caffeine has been taken by me to help me do my work. I have had at different periods in my life — there have been times when I have been rather under pressure, and have been compelled to work in a short space of time. At these times, I have taken coffee and pure caffine for the purpose of having more ability to do the job I had to do. I have found that in my case this has been followed without any depression or any bad consequences whatever. I have been able to do better work and do it in quicker space of time and suffer no evil consequences from it.

Q. Do you use any caffeine-containing beverage ordinarily or regularly?

A. Yes, sir.

Q. How much?

A. I suppose I take — it varies — sometimes I take

none for a time when I do not care for it — I take two cups of coffee in the morning, strong cups, which will contain two grains of caffeine.

Q. Do you mean two grains each?

A. Yes, sir; from one and a half to two grains each. I take very often in the evening, two cups of tea which is fairly strong. I sometimes take an after dinner cup of coffee. I suppose on the average I get four or five grains of caffeine every day, and have for a great many years.

Q. Is caffeine used as a part of diet in institutions for the insane which you have been connected with?

A. In the form of coffee and tea, it is.

Q. To what extent?

A. The asylum at Ward's Island, and in fact, all the state hospitals, they get one cup, some of them, and some two, if they want it, of coffee every morning, and they get two cups of tea every night.

Q. How about the use of caffeine beverages as a part of the ration of the army and navy.

A. Yes, sir; it is used.

Q. To what extent?

A. The United States army receives a ration of 1.12 ounces of coffee per diem — there are several kinds of work in the garrison and in the field, there is no variation in quantity — four or five cups of good strong coffee, and I may say that as a result of my observation, the quantity of coffee is divided. As a usual thing, a man gets his rations, and if he does not use it, he pours it back into this pot, and some, in that way, get more than others?

Q. Is that due to the fact that some of them don't drink it?

A. Yes, sir; and others a great deal more, get a great deal more.

Q. Consequently, their share goes to the others?

A. Yes, sir.

Q. How about the use of caffeine-containing beverages in the Government asylumn for the insane at Washington?

A. The patients in the Government asylumn get an average of three-quarters of an ounce of coffee per day.

Q. What is the effect of caffeine taken in the term of beverage, on the mental processes?

A. The effect of caffeine, particularly pure caffeine where there is no complication — no complications which occur in coffee where there are other substances, is to stimulate the mind, the man's ability to associate his ideas is increased and improved. He is enabled to do more work, — intellectual work which he could not do before without

any signs of effort, that he, he works without appreciating that he is doing hard work. He has no essential stimulation, or comparatively very little. In that respect, the effects of caffeine differ from those of morphine and cocaine, where there is excitement — emotional excitement. These are about the chief ones. So far as his judgment and memory to recall ideas, it is improved, and of course, all his intellectual operations are stimulated and increased by the existence of the effect of the caffeine.

Q. Doctor, is that injurious, those effects you have testified to, are they injurious to the general health of a person?

A. I don't consider them so. I might say that these things are regulated very much by the men; take my own case. I take caffeine to do work at night, and I would sometimes not do quite as much work as I expected to do, and have taken a given amount of caffeine, say five or six grains of caffeine, and the result would be I did not feel like going to sleep, and I would pick up a book and read, and gradually the effect of the caffeine disappeared, and then I would sink into a natural sleep and wake up in the morning refreshed.

Q. How long does it take the effect of a quantity of caffeine which may be taken into the system, to disappear?

A. That depends upon the individual case. Also under what circumstances they take it; it is a variable time, I don't think any reasonable amount of caffeine is retained for more than several hours, perhaps two or three hours, but I would not wish to answer that definitely.

Q. What kind of persons would be affected most by the taking of caffeine-containing beverages and what kind might possibly be injured?

A. What we call neurotic and psychopathic people, defective people.

Q. Those are not normal individuals?

A. No, sir; they are unfit individuals. It may do harm or it might not occur with a good many people who have nervous diseases.

Q. Is there any nerve or mental disease produced by caffeine alone?

A. There is not. There are symptoms produced, sometimes produced by excessive use of caffeine in subjects who are not normal.

Q. Is caffeine ever used as a curative agent?

A. It is.

Mr. Miller: We agree that it is used as a therapeutic agent taken like any other drug.

Mr. Sizer: If you concede that I will pass on.

BY MR. SIZER:

Q. Is it possible that the use of caffeine may sometimes produce insomnia, and if so, under what circumstances?

A. The use of caffeine in coffee may produce insomnia and it does produce it very often from disturbances of the digestion produced by caffeol and the other things in the coffee. Sometimes coffee and sugar will produce a condition of gastric disturbances that produces insomnia when black coffee won't do it.

Q. Does caffeine ever produce sleep?

A. Yes, sir, in this way: It produces sleep in a tired brain in which the breakdown of the nervous tissue remains and is not removed by the introduction of fresh blood. This matter is removed, taken away, and excreted, and of course the toxic conditions being removed, sleep follows.

Q. Have you had occasion to observe the extent and effect of caffeine-containing beverages in other countries besides this?

A. Yes, sir.

Q. Where?

A. I spent some time in Japan and some time in Southern Africa. I was at Tunis, I was at Algiers, I was at Visca and at Morocco. I went to these places on three different visits abroad. I spent several weeks in Japan. In both of these countries — in Northern Africa coffee is used in its strong form. They get the full caffeine content. In Japan they have nothing but tea, and I have been amongst those people and watched them and saw their lives and saw their children and have noticed the effect of coffee and tea.

Q. Do they drink coffee and tea throughout the day, or only at meal times?

A. They drink it at all times. Of course, in Mohammedan countries they are not allowed to drink wine or spirits, and coffee and water are the two beverages.

Q. You say that children drink coffee and tea?

A. Yes, sir; particularly in Japan I saw children constantly drinking tea.

Q. What is the condition of health of those people and of their children?

A. From my observation of the people and the children, both nations are warlike, full of endurance, can stand great physical fatigue, can endure long marches, apparently have no physical diseases, and the children are fat and well nourished, and I saw none of the casual ordinary evidences of nervous diseases found in other places. Of course, I saw the same number of sore eyes and things like that, but I saw no evidence of any effect from drinking tea and coffee.

Q. In your opinion, is there anything in the caffeine or in caffeine-containing beverages that might affect an unborn child or have any effect on the progency of people who take it?

A. I do not believe it can.

Q. Is there sometimes a difference in the effect of coffee and tea on people, and if there is such difference, to what would you ascribe it?

A. There is a difference. Some people can take tea and cannot take coffee, and vice versa. Sometimes it is purely nervousness, and then again it is due to different substances; for instance, tea has tannic acid and that disagrees with a good many people and they cannot take it, and they take coffee.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You know that caffeine poisoning from strong coffee is very frequent in Turkey, if you have traveled there?

A. I do not know.

Q. You do not know how that is?

A. I don't know anything about it.

Q. What country was it besides Japan where you made your visit, what that Africa?

A. I went to Tunis, Algiers, Visca and Morocco.

Q. Coffee takes its name from a certain province in Africa?

A. In Arabia.

Q. That was where it was first obtained.

A. Yes, sir.

Q. In the work which you wrote, which I have only the second volume of ——

A. May I interrupt — Doctor Hines, will you send for the first volume of my work? It is in my room.

Q. I want to ask you about this. You class hydrochloric acid as a poison?

A. I do not think I make any mention of it as far as I know in that work. I do not wish to qualify as an expert on poisons, but as a common garden doctor I can understand that it can act as a corrosive poison, that it is strong ——

The Court: I do not see the bearing of that, as to whether hydrochloric acid is a poison. Is that the question?

Mr. Miller: Yes.

The Court: I exclude that.

Mr. Miller: My point was that hydrochloric acid would be classed as a poison and if it is not so toxic as caffeine I could prove it by this witness.

The Court: I exclude that.

BY MR. MILLER:

Q. Hydrochloric acid is a normal constituent found normally in the stomach?

The Court: I exclude everything about hydrochloric acid.

Mr. Miller: Note an exception.

BY MR. MILLER:

Q. You wrote the volume of the treatise which was read to Doctor Moyer?

A. I wrote part of it.

Q. You wrote that part which was read to Dr. Moyer?

A. I did.

Q. When you speak of caffeine-containing beverages being taken and consumed, you mean coffee and tea taken at meal time?

A. I mean coffee or tea taken at any time.

Q. The most prevalent time for coffee and tea taking is at meal time?

A. The habitual time, yes.

Q. Referring to the time you would take caffeine and about its stimulating you when you were tired and had increased your work, if you had taken cocaine you would probably have gotten the same result?

A. No, sir.

Q. What would have been the result?

A. I would have had exhaustion after.

Q. I talk about the stimulating effect. Would not you have gotten the same stimulation?

A. No, sir; I would not have gotten the same stimulation.

Q. You would have gotten the form?

A. Yes, sir; the form, but not the same.

Q. If you had taken alcohol you would have gotten stimulation?

A. Not the same.

Q. But you would be stimulated, I didn't say the same.

A. I would be stimulated, yes.

Q. You say you give coffee to insane people?

A. To some insane people.

Q. Do you make any discrimination as to whether you give it to one or not?

A. It is given in the asylum in the routine way as a regular diet. I am perfectly willing to say in my own practice there are some cases I would not use it. I would not use it in any considerable quantity with any excited

cases, but you give it as a remedial agent in melancholia.

Q. When you say excited cases, — explain.

A. I would not give it to any maniacal case.

Q. I do not understand that.

A. Do you know what mania is?

Q. Yes.

A. That is acute mania.

Q. They have various kinds of manias.

A. I am speaking of acute mania.

Q. That means disease of the mind?

A. That means disease of the mind, from some autogenitic poison. A form of bodily poison and I would not give any remedy which would contribute to the xanthine quantities in the body.

Q. By melancholia, when you give coffee it would be as a remedial supporting agent?

A. Yes, sir. They are below par, depressed.

Q. When a man drops below normal?

A. Yes, sir; from disease.

Q. And you would give it to rouse him up?

A. Yes, sir; just as I would give alcohol or stimulating food or many other things to bring him up — keep him up.

Q. You never made any test to ascertain the length of time that caffeine stays in the system?

A. No scientific test. I am not competent to do that.

Q. Is it not true that caffeine might be a contributing agent to nervous disorders?

A. If you will tell me what you mean by nervous disorders.

Q. I could hardly be expected to tell a nerve specialist what I mean by nervous disorders.

A. Without quibbling, I am perfectly willing to say it does produce nervous symptoms in some people. I suppose you mean unrest and irritability and sleeplessness, and it does produce that in some people.

Q. Insomnia or sleeplessness in this depressed state which you describe as melancholia is not conducive to the health of the individual?

A. It depends upon the degree. I have been awake here every night since I have been here in Chattanooga; I do not feel well. When I get on the train tomorrow and when I get home I will feel perfectly well, so it is not a diseased condition.

Q. My question was as to sleeplessness, whether that is conducive to good health.

A. No, sir. Any disturbance long continued is not conducive to good health.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. You say that under certain conditions you would not give caffeine to such a patient. Isn't it also true that under certain conditions you would withhold other articles of food which would be proper with a well man?

A. Yes, sir, a great many.

Q. You started to explain the difference between alcohol and caffeine stimulation and I wish you would do that.

A. The psychic effects of alcohol, I think, are far more injurious than of caffeine. There is nothing more than mild stimulation with caffeine, and with alcohol I think there is more direct toxic — more direct action from the contact of the alcohol. I think a good deal of the cerebral effects of caffeine come from the effect on the heart itself directly.

Q. How about the relative after-effects of alcohol and caffeine?

A. I say the depression with alcohol — that is, the amount of alcohol to produce a change of cerebral effect — is attended by more or less conscious depression. You can take considerable quantity of caffeine without any effect whatever.

(Witness excused.)

DR. STEWART ROBERTS,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Where do you live?

A. In Atlanta.

Q. Are you a practicing physician there?

A. Yes, sir.

Q. Are you connected in any way with the public schools of Atlanta?

A. No, sir. I was formerly medical director of the Atlanta public schools.

Q. For how many years?

A. About a year and a half.

Q. Have you made an examination of a number of subjects in the City of Atlanta who are accustomed to use Coca-Cola?

A. Yes, I have.

Q. How many subjects did you examine?

A. One hundred.

Q. Did any other doctor assist you in the examination?
A. Yes, sir; Doctor Boland.
Q. Who selected the subjects examined?
A. I did.
Q. What was the object in the selection of those subjects as to getting people who used much or little Coca-Cola?
A. The object was to select those people for examination who drank the greatest amount of Coca-Cola daily and for the greatest number of years, and in selecting those subjects it was necessary as we went on — I found it necessary to refuse a great many subjects because they had not drunk Coca-Cola either enough daily or long enough period of time.
Q. You wanted to get a test on those who had been accustomed to the use of it for some time?
A. Yes, sir.
Q. What was the average number of glasses per day among those one hundred?
A. The average number of glasses was three and one-tenth glasses drunk by the one hundred.
Q. Do you remember what the average length of time was they had been drinking?
A. Ten years and seven months each on an average.
Q. I will ask you what kind of an examination you subjected these people to, and if you have any notes or memoranda, you may refer to them.
A. I started out to prepare blanks based on the form of life insurance blanks used by the great insurance companies of this country, the test ordinarily required by the insurance companies.
Mr. Miller: I object to that. That is not competent. He can tell what his test was, but he cannot tell what the insurance companies require. That is secondary evidence.
The Court: Have you one of those blanks?
The Witness: Yes, sir, I have.
The Court: The objection as to secondary evidence is removed and I do not think it is incompetent otherwise, and I will overrule the objection.

BY MR. SIZER:

Q. Just file that insurance blank as an exhibit with your testimony and then proceed with your answer.

(The document was received in evidence and marked Exhibit 1 Roberts.)

A. To sum the whole matter up, the ordinary test made by examining physicians of an ordinary patient and ten

additional tests were added, principally concerning the condition of the nervous system, and in every case the urine was examined, not only chemically but microscopically.

Q. Now state the tests that you say are used by the insurance companies in making their examination of applicants to which you submitted these subjects.

A. Their appearance as to health was noticed, the number of times they breathed per minute was counted. Their weight was taken, not by their say-so, but they were actually weighed on scales, and their height was measured. Their temperature was taken by an ordinary fever thermometer. Their pulse was counted and its condition as to rate and strength and regularity, etc., each separately noted. A special instrument was used known as the blood pressure instrument. This instrument measures accurately the force with which the heart beats and whether the heart beats regularly or not, and the speed or velocity with which the blood goes through the blood vessels. That was taken and also that instrument had the power to write out the pulse beat, a little pen point on a blackened paper, and the pressure was taken and the quality of the pulse noted, and an actual tracing of the blood through the arteries written out on a paper, and that was examined and noted.

The nervous system was examined by the knee jerk. The patient was struck on the knee to see whether the reflexes were normal and responded to the stimulus. The eyes were examined as to whether they were sensitive to light. That is, as to whether the pupil contracted when it looked at a bright light and as to whether it was expended when it was put into a lesser light. The eye was also examined as to whether it expanded when it looked at an object two or three miles away and then as to whether it contracted when they looked at an object two or three inches away.

The general nervous condition was examined by what is known by the Rhomberg Test, as to whether the patient could stand erect with eyes shut and toes and heels together, and whether his walk was steady, and his general nervous condition was taken.

The fact as to whether he had any headaches or not was noted and that was carefully put, not as to whether he was accustomed to have headaches, but as to whether he ever had headaches, and in addition to that Question No. 15 dealt with another nerve defect which might have been overlooked in the previous tests.

Then again any other brain or nervous symptom such as unsteadiness or anything of a general nervous condition was ascertained. The heart and the blood vessels were

carefully examined and the lungs were examined and the condition of the stomach and other abdominal organs was noted, whether the patient ever suffered rheumatism or gout, the condition of the kidneys, and after the urine had been carefully examined both chemically and microscopically, that was noted. In addition to this, it was ascertained whether these subjects had ever applied for life insurance and whether they had ever been refused life insurance. The total number of policies carried and the total amount of insurance carried was also noted. It was also ascertained as to whether they considered themselves in perfect health at that time, and as to whether they had been seriously sick during the last five-year period, and as to what effect they considered Coca-Cola as a drink by them had had on themselves, both as to sleep and as to the nervous system, and as to stimulation, and any other effect which they had noted.

It was also ascertained whether they drank coffee or cocoa or alcohol or tea, or whether they used tobacco or any other stimulants or sedatives previously mentioned.

Of course, the age and sex was also noted, and it was also noted as to whether they seemed to be about the age stated. That is, as to whether they were prematurely old, unsteady or wrinkled or gray — different from what the age stated would justify.

Q. How many of them were females and how many males?

A. Eighty-six males and fourteen females, and I may say of these women, with the exception of two, — that is, twelve of the fourteen women,—were women who for a long period of time had been working six days out of the week, most of them in offices doing rather strenuous work for women, such as stenography and bookkeeping, and auditing work.

Q. With respect to the vocation of the male subjects.

A. The effort was made to select these one hundred people from as many different occupations as possible; that is, we did not look for all clerks or mechanics or insurance people or farmers, or all druggists or all salesmen, but the effort was to get as many different occupations represented in the one hundred as possible, and in adding up the number I found that thirty-four different lines of work were represented.

Q. What were the limits of age — what was the youngest?

A. The youngest subject was nineteen, according to my best recollection, and the oldest subject was fifty-three.

Q. That covers the examination?

A. Yes, sir.

Q. State what was the result of this examination and what you found to be the condition of the health of these one hundred persons.

A. You do not want each different one?

Q. No; just the summary.

A. As far as I could tell from this work, there was no defect that I could find present as the result of Coca-Cola on these people.

Q. What was the general condition of their nervous health? Did you find any of them abnormally nervous or disturbed in that particular?

A. No, sir; I did not. Of course, I found some who had occasional headaches, but the cause of the headaches was ascertained and in not any case was it due to Coca-Cola.

Q. You say you inquired as to whether they had life insurance; what did you ascertain with respect to that?

A. Out of the one hundred I examined, sixty-eight of them carried insurance. These sixty-eight that carried insurance, two had been held up temporarily; that is, at the time they applied for the policy it was not granted that day, but it was held up for a short time until the physical condition could be more thoroughly investigated by the company. One was held up on account of a certain disease his family had had, and one on account of his heart, but both were later granted insurance so that of the sixty-eight who applied for insurance sixty-eight were granted insurance.

Mr. Miller: As to this, I move to exclude because they were statements made not by patients to a physician for treatment; such statements to be competent must be made by a patient to a physician of the patient's history.

Mr. Sizer: I am not offering this on the theory that any statement made to a physician is competent, but we took the depositions of half a dozen of these people in Atlanta and then we stipulated with counsel on behalf of the Government that the testimony of those witnesses taken would be typical of the whole one hundred.

Mr. Miller: That is true, but this doctor is undertaking to tell what the people told him, and I say in so far as he bases any statement of his on what they told him as to whether they had been refused life insurance or granted life insurance, the evidence is not competent.

The Court: I think in so far as the witness makes any specific statement of what they said to him, the objection is well taken, but in so far as he merely tabulates the result of the experiments of this sort, including the information

derived from persons examined, the evidence is not incompetent. I do think that the testimony as to how many carried life insurance should be excluded on the ground that it is too remote and is irrelevant as being influenced by a great many other causes, because companies may be lax in one city about taking people and more strict in another. I exclude that, but the rest I do not except as specific statements of some person to this witness of which I do not now recall any.

Mr. Miller: He stated that he asked them if Coca-Cola affected them.

The Court: He has not stated what they said. He made the statement that he did ask them whether Coca-Cola affected them, but he did not say what they said. Now, I think there must come a point in an examination when a physician investigates a large number of people that he should be allowed to tabulate the results; otherwise, it would be impossible to get it, and then the question is for the jury as to the accuracy with which the experiment was carried on and whether it was given under circumstances that they probably gave correct information. That is a question as to the weight. If there one case and one answer about one person, I think the objection would be well taken, but I think there comes a time in such experiments when a person must be allowed to tabulate the statements of others.

Mr. Miller: Well, now, certain statements are admitted and certain statements excluded.

The Court: I do not recall of any statement made by the witness except the one affecting life insurance companies, and that whole life insurance matter is excluded.

BY MR. SIZER:

Q. I believe you are a practicing physician in Atlanta?
A. Yes, sir.
Q. For how many years?
A. About eight and a half years.
Q. Is it or not true that Coca-Cola as a beverage is very extensively sold in Atlanta?
A. Yes, sir; very extensively.
Q. That is where it is manufactured?
A. Yes, sir.
Q. In the course of your practice and among your acquaintances, have you been thrown in contact with people who had used Coca-Cola extensively?
A. Yes, sir. Most people I am thrown with drink Coca-Cola.
Q. Have you ever known of any class of disease or dis-

ders, physical or mental, due to the use of Coca-Cola?
A. No, sir; I have not.
Q. What is the effect with respect to drinking Coca-
ola by children, do they like it?
A. If you will let me qualify that statement — out of
l the research and examination I made, I should say that
ne woman said she thought it made her nervous, but
rther than that absolutely none.
Mr. Sizer: As your Honor has excluded anything that
ne person told us and as I didn't ask for that ——
The Court: You asked a pretty broad question.
Mr. Sizer: Well, I will let it stand.

BY MR. SIZER:

Q. What was the condition of her health from the test
u made?
A. Her condition was perfect.
Q. Now, about the use of Coca-Cola by children; do
ey like it or do they take it generally?
A. No, sir; they do not.
Q. Do you know why that is?
A. Yes. For a period of time I was thrown very inti-
ately with children in the City of Atlanta and with the
achers of those children. As a matter of fact, I examined
007 of these children and I have been thrown with them
th to and from school, and I have for the last several
onths watched very carefully the habits of children in
tlanta as to the drinks which they order at the soda foun-
ins in Atlanta, and I have never seen a child order Coca-
ola in Atlanta at a soda fountain.
Q. What do you mean by "child"?
A. A child under fifteen years.
Q. To what do you attribute the fact that children do
t take Coca-Cola?
A. That they like other things, that they like their
inks both sweet and cold, and they like ice cream, choco-
te ice cream, and more especially chocolate ice cream soda.
Q. Is there a peculiar flavor about Coca-Cola not found
any other soda water beverage?
A. Yes, sir.
Q. How many school children did you say you exam-
ed?
A. 7,907.
Q. Did you find any cases of nervousness?
A. Twenty-six out of the 7,907 qualified as nervous.
Q. What was the degree of nervousness of those 26?
A. A child would appear rather haggard and weak men-
lly, and could not sit still or be still, and of those cases
unted as nervous, two of them had the disease known as

St. Vitus' Dance, and could not sit still, and the rest were nervous from enormous adenoids or enlargements in the nose, or from lack of food.

Q. Were any of those 26 children suffering from any troubles that could in any way be attributed to the use of caffeine-containing beverages?

A. No, sir; they were not.

Q. From your experience, are you prepared to testify whether or not Coca-Cola is a habit-forming beverage?

A. Yes, sir.

Q. What do you say about it?

A. I say it is not.

Q. Do you use it personally?

A. Yes, sir.

Q. To what extent?

A. I may take one glass a day, never more than once a year more than two a day, and I may go a few days without taking any, and I do not take it at any regular time.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What is your relation to the manufacturers and producers of Coca-Cola?

A. What do you mean?

Q. I mean, what is your relation?

A. We both live in the same town and the same State.

Q. Do you hold any professional connection or sustain any professional relation to them?

A. Whom do you mean by "them"?

Q. Judge Candler, or Mr. Asa G. Candler, or their families, in general.

A. No, sir, I do not. I think one time Judge Candler's daughter had her finger hurt and I put a bandage around it.

Q. And that is the extent of your relations or your professional connection with any of the persons who are engaged in the manufacture of Coca-Cola in Atlanta?

A. Yes, sir.

Q. I show you a little book issued by the Coca-Cola people, and I will ask you to state whether or not on page three of that pamphlet there appears an open letter from you certifying to the virtues of Coca-Cola, and whether you are the same Doctor Roberts who wrote that letter and addressed it to Judge John S. Candler.

A. Yes, sir; I am.

Mr. Miller: I offer that pamphlet in evidence.

The Court: For what purpose?

Mr. Miller: To show his interest in this case because I

think it is apparent from the reading of that letter. I have not finished the cross-examination, but I wish to offer it now.

The Court: Without objection it may be offered.

BY MR. MILLER:

Q. This letter was dated September 9, 1907.

A. September 7, was it not?

Q. It is printed "September 9." What were the circumstances under which this letter was written?

A. If I remember correctly, in 1907, or at that date, I was Professor of Physiology in the Atlanta School of Medicine, and Judge Candler wrote me and asked me as a professor of physiology to state the physiological effects that the beverage Coca-Cola, and the beverage coffee and the beverage tea would have on human beings, and signed it: "Very truly yours, John S. Candler."

Q. Did you receive any compensation for writing that letter?

A. I did, just as you do.

Q. I don't know whether it is as I do or not.

Mr. Sizer: I submit that is not a proper question.

The Court: I will overrule the exception.

BY MR. MILLER:

Q. In this letter it is stated that caffeine in medical doses which range from two to three grains, or in minute doses, as for instance Coca-Cola, has no effect whatever on the digestive system or the alimentary canal. Do you make that statement now?

A. Yes, sir.

Q. It further says: "The influence is a temporary one and does not noticeably increase the power to do work except when the body is plentifully supplied with nutritious food." Now, I infer from that that when the body is plentifully supplied with nutritious food that the taking of caffeine is not conducive to good health or to increase work. Is that what you mean by that statement?

A. No, sir; your inference is wrong.

Q. What did you mean by the statement that the influence is a temporary one and does not noticeably increase the power to do work except when the body is plentifully supplied with nutritious food?

A. Just what it says.

Q. Suppose you take it on an empty stomach, what would be the result?

A. In what amount?

Q. The amount you are talking about here in this connection.

A. I speak of several different amounts here.

Q. You state that caffeine is a cerebro-spinal stimulant, physiologically, in the human mechanism, and it may temporarily increase the ability to do work, chiefly on account of its action on the central nervous system. This influence is a temporary one and does not noticeably increase the power to do one's work except when the body is plentifully supplied with nutritious food. That is a summation of what you said. Now, what quantities were you talking about?

A. That letter was written four years ago and so far as I remember I was speaking of caffeine in amounts ranging from three to four grains. I suppose what you are driving at is this: I would like to understand that question as to whether in a man who does not get any food, caffeine would make him do more work.

Q. I have just asked you the effect of taking it on an empty stomach.

A. I think it would have the same effect exactly, as it would have when taken on a full stomach, whatever that effect would be.

Q. You say it would cause the body to do more work than it would otherwise do. Then you think the taking of that on an empty stomach would cause the body to do more work than it otherwise would do, is that what you mean?

A. I just can't understand that long question.

Q. I ask you the question whether or not the effect of taking caffeine on an empty stomach would cause a man to do more work than he otherwise would do.

A. How long was the stomach empty?

Q. It does not make any difference how long it was empty. In other words, does this serve as a food or a stimulant in place of normal food?

A. What do you mean by food or stimulant?

Q. I mean the food.

A. You mean the caffeine itself?

Q. Yes.

A. I would not classify caffeine itself as a food. I would classify the caffeine-containing beverages as food, such as tea, coffee and Coca-Cola.

Q. What are the nutriment foods in caffeine, — what would be the nutrient food in caffeine?

Mr. Sizer: We have not examined on that.

The Court: No, and he could not cross-examine on that, but he is examining the witness in chief as original examination.

Mr. Miller: If I can't cross-examine I won't ask. I thought he had stated about that.

BY MR. MILLER:

Q. Returning for a moment to your examination of these one hundred people, did you select them or were they selected and sent to you? In other words, how did you get their names?

A. Most of them, so far as I remember, I first asked them as to the amount of Coca-Cola which they drank on an average, daily, and how long they had been drinking it.

The Court: That was not the question. The question was how you got the names.

A. Some of them I knew and knew they drank it, and I went to them personally; and others of them were sent to my office.

BY MR. MILLER:

Q. By whom?

A. Mr. Hirsch.

Q. Of counsel for the Coca-Cola Company?

A. Yes, sir.

Q. Then those you did know that drank Coca-Cola and that you asked about it, you asked at the instance of Mr. Hirsch and as a part of your work in this investigation?

A. Yes, sir.

The Court: When was this investigation made?

The Witness: Beginning in May, 1910, and continuing from that time until about the first of this month.

BY MR. MILLER:

Q. Now, in drawing your conclusions as to the effect of Coca-Cola, of course you took the statement that each and all of these people made to you as to the amount of food they consumed, the amount of coffee they consumed, the amount of tea they consumed and the amount of tobacco they consumed, and the amount of other intoxicants they took — you took their statement as being true?

A. Yes, sir.

Q. And you base your opinion on what they told you as to whether or not they partook of these substances and the quantity that they took?

A. I base my conclusions on the results of the examination or examinations.

Q. And you were, of course, employed by the Coca-Cola Company to do that work?

A. I was engaged by Mr. Hirsch, of counsel for the Coca-Cola Company.

Q. Do you know whether or not these subjects that were

sent up there for you to examine were paid to come up?

A. Whatever payments were made I made myself.

Q. Then you ought to know.

A. About eight of the hundred were paid, seven women and one man. The rest were glad to be examined.

Q. Your statement that no nervous disorders were in your opinion produced by caffeine was based entirely on what these people told you?

A. No, sir, it was not.

Q. It was based in part on what they told you?

A. Yes.

Q. Because you asked them ——

A. Yes, sir.

Q. Now, how much was the greatest amount that these people who came up to be examined by you drank of Coca-Cola?

Mr. Sizer: I have no objection to this statement going in if Mr. Miller wants to ask what statements they made, and if he does that we are entitled to have all the statements that they made.

The Court: What was the question?

Mr. Miller: Read the question, Mr. Hacker.

(The question last above was read.)

The Court: The exception is over-ruled.

The Witness: The maximum dose, or the maximum number of drinks of Coca-Cola taken on an average daily by any one of these 100 people examined was twenty glasses daily.

BY MR. MILLER:

Q. That was the maximum average?

A. No, sir, the average glasses daily for a period of 13 months. That was a man.

Q. You found that these children, these 9,000 and some odd children that were examined in school, twenty-six were afflicted with any sort of nervous disease as far as I understand.

A. Mr. Miller, two of these only were actually afflicted with what might be called nervous disorders or nervous diseases. The rest of them were simply slightly nervous and looked as though their nervous systems were not quite up to the standard for that child of that age as the result of some other contributing cause as adenoids or tonsilitis or auremia.

Q. Have you ever studied vital statistics at all?

A. No ——

Q. Have you not studied enough to know that the statements you make on that stand are discredited by every writer on vital statistics, that 26 out of 7,000 odd children

are only affected by nervous disorders?

A. That depends upon the point of view. If you take the statistics of the German children. The German physicians seem to count as nervous disorders things that American physicians do not count as nervous disorders.

Q. Confine it to New York, Chicago, or Chattanooga, or any place?

A. I have studied the conditions with reference to children in Baltimore, Philadelphia, New York and Boston. I mean I have actually been on the ground and seen the work done and the conditions under which those children live in those cities, and a great many of them are of foreign parentage and do not receive their amount of fresh air or food or the open air conditions that children receive, Southern children receive, and that was one of the main questions, and one of the main conclusions as the result of this work done with the Atlanta children; that they were less nervous children of any children I had ever known anything about.

Q. Then, if I understand your statement it is that this percentage of nervousness in children which you have given as a result of your examination discredits or rather it is lower than that of any other report made with respect to that form of trouble in children?

A. It is lower I think, yes, sir.

Q. Now, when you stated that certain of those just appeared by looking at them, what kind of examination did you give these children, anything but merely looking over or at them to see whether or not they appeared to be nervous?

A. Do you want me to state in detail the examinations that they were subjected to?

Q. I asked as to whether they looked to be nervous?

A. They were all subjected to the same examination —

Q. Well, were they all subjected to the same examination?

A. I cannot give an answer to that question without giving the whole examination.

Q. Then give in detail as to what you did as to these seven thousand children.

A. Each sex of the children was taken, the weight taken in a great many of them if they looked under weight; their eyes were tested as to distance by the ordinary Smellings eye chart; their ears were examined; the eyes were examined as to conditions of the lower lid and the surface of the eye; the nose was examined; their teeth, tongue and throat, the condition of the tonsils, as to whether they had adenoids or not; the heart examined and listened to carefully,

the lungs were examined; the condition of the bones, noting appearance of the child as to health, whether its state of nutrition was good, as to whether or not it had plenty of food; as to whether it seemed for its age and sex a healthy normal child. It would take to do this examination sometimes fifteen or twenty minutes.

Q. Are you an oculist?

A. I am not.

Q. Are you a specialist in diseases of the eye, nose or throat?

A. No, I am not.

Q. When was it that you went through these examinations and made these examinations?

A. I believe this was done from about March, 1909, to 1st of June, 1910.

Q. What business have you been engaged in since the 1st of 1909? I mean aside from this examination?

A. I have been practicing medicine both before and during and since that time, and have been teaching medicine.

Q. These examinations were conducted where?

A. These examinations were conducted in the different public schools in the City of Atlanta.

Q. The tests that you refer to as having been made in your examination in chief were for the purpose of ascertaining as to the presence or absence of symptoms of locomotor ataxia, were they not?

A. No, they were not; not solely for that purpose.

Q. Not solely for that?

A. No, sir.

Q. Now, do I understand that you never saw a child under 15 years of age buy a glass of Coca-Cola?

A. Yes, sir, that is right.

Q. Well, you do know that it is on sale or for sale at five cents a glass in Atlanta and Chattanooga and other Southern cities to anybody who wants it?

A. Yes, so far as I know.

Q. Now, doctor, taking as a basis your statement that it took about twenty minutes to make one of these examinations, that would be three an hour, and if you devoted your entire time, if you worked full ten hours a day without stopping to eat, drink, or anything else, General Cox informs me that the statements show it would require full 233 days for you to have made these examinations if you had worked constantly?

A. You did not quite get my statement accurately, Mr. Miller, and therefore your calculation is wrong. I said some of these children it took as long as 15 or 20 minutes

to examine, and there is a great deal of difference between some and all.

Q. I thought you said you examined each for twenty minutes?

A. I did not, they averaged anywhere from I should say two minutes up to twenty.

Q. From two minutes to twenty?

A. Yes, sir.

RE-EXAMINATION,
BY MR. SIZER:

Q. I want to ask you about that subject who you say took twenty glasses a day?

A. Yes, sir.

Q. Who was he?

A. He was a man of about 38 years of age.

Q. What was his age?

A. He was a traveling salesman.

Q. Do you remember how you found him or how he was brought to you?

A. I don't know by whom he was found; he was sent to my office because he drank the most unheard of amount of Coca-Cola.

Q. Did he correctly state the examinations that were made and the results arrived at?

A. He did.

Q. Now, doctor, in your practice in Atlanta are you thrown in contact with people who are accustomed to using Coca-Cola?

A. I am.

Q. Both your patients and your clients?

A. Yes, sir.

Q. Now, have you ever found or known of a case of injury to health of any kind resulting from the use of Coca-Cola?

A. I have not.

Q. What is your experience, doctor, with respect to the use of Coca-Cola by children, whether they like it or habitually drink it?

A. So far as I can recall I have only seen one child take a glass of Coca-Cola, and that was only once that I saw that.

Q. As a rule do children prefer other beverages to Coca-Cola?

A. I am under that impression.

Q. From your knowledge and experience with Coca-Cola — in the first place do you personally use Coca-Cola?

A. Yes.

Q. Do you partake of other caffeine-containing beverages?

A. I drink coffee, and sometimes cocoa or chocolate.

Q. From your experience is the use of Coca-Cola and other caffeine-containing drinks, are they or not habit-forming substances?

A. They are not.

CROSS EXAMINATION,
BY MR. MILLER:

Q. What is your age, doctor?

A. I am 29 years old, sir.

Q. Now, I pass you a periodical published in book form being a case of Coca-Cola poisoning reported in Virginia Medical Semi-Monthly, under date July 13th, 1902, and ask you if you have ever known or heard of that case before?

A. No, sir, I have not.

Q. Or read it?

A. No, I have not; I have never heard of it.

Q. Now, read that case and from the symptoms therein given by the attending physician, state whether or not in your opinion that was a case of Coca-Cola poisoning?

Mr. Sizer: We have not examined him as an expert, but have asked him as to his personal knowledge; he is not qualified as an expert.

The Court: The exception is well taken.

Mr. Miller: We respectfully enter an exception and you may withdraw the book — I insist when he stated what he knew that embraced of course what he had read.

BY MR. MILLER:

Q. Then, doctor, you need not read the case further.

A. All right.

Q. When you were answering on direct examination as to what you knew you mean what had come under your personal observation?

A. Yes, sir.

Q. Did you make an especial careful examination of that man?

A. Yes, sir, that man was examined three times.

Q. What was his condition of health?

A. He was in so far as I could determine perfect condition of human health.

(Witness excused).

J. E. PAULLIN,

the next witness called by the Claimant, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION,

BY MR. SIZER:

Q. Where do you live?

A. I live in Atlanta, Ga.

Q. Are you a practicing physician?

A. I am.

Q. Of how many years experience?

A. I received my medical degree in 1905; I have been practicing in hospitals and in private practice since then.

Q. Have you any official commission in the State of Georgia?

A. I am Pathologist of the State Board of Health.

Q. Did you assist Dr. Roberts in making examinations of these one hundred subjects in respect to the use of Coca-Cola?

A. I did.

Q. And you have heard Dr. Roberts testify about the matter?

A. I have, yes, sir.

Q. Now, you say a great many things transpire daily with you — you make no notes of any of them, you would not recall, it is merely casual observation?

A. Certainly.

Q. You do not recall having noticed but one child?

A. That is all.

Q. You have heard a great many people call for Coca-Cola that you could not call the names of?

A. Yes.

Q. Hundreds of them?

A. Certainly.

(Witness excused).

The Court: Before you put the next witness on I will say I have examined this list of books and references submitted by Dr. Vaughan, on his examination, and I have examined all the original books that have been handed to me, and I find that the original cross-examination of this witness was limited to this question: "Are you acquainted with any reputable treatises that advocate the use of caffeine, or general consumption of caffeine"? That is the way it is written by the stenographer, and immediately preceding in the question is a reference to caffeine as a drug. There was nothing in the question of Mr. Miller as to question of caffeine containing beverages, and it was distinctly limited to medical treatises that recommended caffeine. On re-examination the question was somewhat broadened, including caffeine containing beverages, authorities that recommended caffeine containing beverages,

but no ruling was made on the question, and now a ruling is requested, and while I might be disposed to view the word "caffeine" as there used as covering a case of medical authority or medical treatise recommending any caffeine containing beverage where it appeared that it was recommended because of the caffeine, that case does not arise in any of these references submitted in my opinion. There are only two of these books which can be said in any correct sense, I think as medical treatises — Hutcheson on Foods and probably Bunge on Physiological Chemistry, which might be stretched so as to be called "medical treatises". Neither of these recommends the use of caffeine containing beverages — they discuss caffeine containing beverages — state the action, but I find no reference to recommendation of caffeine containing beverages or caffeine — and I sustain the objection to this list.

Mr. Sizer: I think, your Honor, we will note an exception.

The Court: It may be noted.

E. BATES BLOCK,

the next witness called by the claimant, of lawful age, first duly sworn, testified:

DIRECT EXAMINATION,

BY MR. SIZER:

Q. What is your profession and where do you reside?

A. Physician, Atlanta, Ga.

Q. How long have you practiced as a physician?

A. I graduated in 1895.

Q. Have you had experience, doctor, through your practice and acquaintance with people who regularly drink Coca-Cola?

A. I could not state as to the regularity of their drinking it, but I think I can say, though, yes.

Q. Do you know people who drink it?

A. I do.

Q. Have you such people among your patients?

A. I do.

Q. Have you ever known, Doctor, of a case of physical or mental disorder resulting from the use of Coca-Cola by any person?

A. No.

Q. What is your experience with respect to the custom of children as to drinking Coca-Cola. Whether they like it or ordinarily drink it?

A. I have never seen a child drink Coca-Cola.

Q. Have you seen children drink soda fountain beverages?

A. Very often.

Q. Is it true, then, that they generally drink something else but Coca-Cola?

A. They seem to want the biggest glass they can get for a nickel, and the sweetest.

Q. The biggest glass for the money?

A. Yes, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What do you say your age is, Doctor?

A. Thirty-seven.

Q. Of what institution were you a graduate?

A. The University of Virginia.

Q. Sir?

A. The University of Virginia.

Q. And what is your specialty?

A. Nervous and mental diseases.

Q. You know it to be a fact that persons who are nervous and sensitive, as you might term it, are not proper persons to administer caffeine to under ordinary circumstances, don't you?

A. As a rule I would not give caffeine to nervous people.

Q. You also know that a large proportion of the human race are more or less nervous, don't you?

A. I don't know that, sir.

Q. Sir?

A. I don't know.

Q. You mean — You say you don't know?

A. No, sir. I don't know what you mean by large proportion.

Q. Are there a great many people?

A. There are a great many people, yes.

Q. And otherwise you would not prosper in the practice of your profession if there were not a great many ——

A. Well ——

Q. (Continuing.) — that were afflicted with some sort of nervous trouble?

A. No, sir.

Mr. Sizer: Well, I object to that.

The Court: The objection is sustained.

BY MR. MILLER:

Q. Is it a fact that a goodly proportion of people are afflicted with nervous trouble?

A. You mean over fifty per cent.?

Q. I said a goodly proportion, I didn't mean to limit

to one-half or one-third, but I said a goodly proportion of humanity.

A. If I understand what a "goodly proportion" means I would say no.

Q. Can you tell or have you any method of ascertaining approximately the proportion of humanity that is afflicted with nervous derangements?

A. I can form a pretty fair estimate, yes.

Q. Now, tell us what percentage.

A. Taking the entire diseases that we have, the different countries and the different portions of the world ——

Q. (Interrupting.) I am speaking of this country, the United States.

A. Well, all right, then. The different portions of the United States are afflicted with mental diseases in the proportion of 1 to 350 to from 1 to 500.

Q. Now, that is mental diseases?

A. Yes, sir.

Q. Well, now as to nervous diseases?

A. Nervous diseases on the whole are more common than pronounced mental diseases, and possibly 1 out of 200 would be the record as to nervous diseases.

Q. Can you point to any standard publication or statistical publication with reference to that?

A. I cannot as to nervous diseases. I can as to mental diseases.

Q. What is the proportion relatively of persons who have a tendency to nervousness?

A. I do not know.

Q. That is very much greater than those you have what you say have nervous diseases?

A. I suppose it would be true of any disease, yes, I think so.

Q. And the administration of caffeine to a person with a tendency to nervousness would be, as I understand you, to induce or intensify the nervous temperament?

A. I think as a general proposition that is true.

Q. Now, did I understand you to say or not — you do attend persons who are afflicted with troubles due to Coca-Cola?

A. Never treated anybody for that trouble.

Q. I am asking you whether or not you have treated patients who were afflicted and their affliction was in part due to Coca-Cola drinking?

A. Never to my knowledge.

Q. Well, now then, did you ask to ascertain or did you inquire?

A. I have asked them in regard to tea and coffee, but I

cannot recall positively whether I ever asked them specifically in regard to Coca-Cola, but I have had sometimes had volunteered the information that they drink tea and coffee and Coca-Cola, and asked me if they were injurious.

Q. Now, in the treating of your patients, is it not true that in many cases you must and do forbid them or restrict them as to caffeine-containing beverages, as to the consumption of caffeine-containing beverages?

A. What do you mean by "many," Mr. Miller?

Q. I mean a good many, — several.

A. You mean I have done that several times — yes, sir, I have done that several times.

Q. Why did you ask your patients whether or not they had been consumers of caffeine, Doctor?

A. I said coffee, because in some people who are afflicted with restlessness or some motor agitation, sleeplessness — I find this may be due to the caffeine-containing beverages and I asked them to know.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. And do you or not have occasion to restrict your patients to the use of caffeine beverages — I believe you say you do. Do you mean the caffeine-containing beverages in general, or any one in particular?

A. No; none in particular.

Q. Is it also true that you have to restrict your patients with reference to other liquids or substances?

A. Yes, sir.

(Witness excused.)

Thereupon,

DR. STEWART ROBERTS,

recalled as a witness herein, testified as follows:

RE-CROSS-EXAMINATION,
BY MR. MILLER:

Q. What is your age?

A. Thirty-two.

(Witness excused.)

Thereupon,

T. V. HUBBARD,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Doctor Hubbard, what is your professior?

A. Practicing medicine.
Q. Where do you live?
A. Atlanta.
Q. How long have you practiced medicine?
A. Since 1902.
Q. Do you know the drink Coca-Cola, Doctor?
A. Yes, sir.
Q. Do you know it personally?
A. Yes, sir.
Q. To what extent?
A. Some days I drink maybe four or five glasses, then I will go a week without drinking any, or a month as far as that is concerned, and some days I drink two or three.
Q. Among your clients, or patients, — are you accustomed to meet people who drink Coca-Cola?
A. Yes, sir; I see them take it at the soda fountains.
Q. Have you ever known of a case of physical or mental disorder or derangement resulting from the use of Coca-Cola or any other caffeine-containing beverages?
A. I have never found any.
Q. What do you say, Doctor, with respect to children taking Coca-Cola?
A. I never saw a child take it.
Q. Have you ever seen children drinking other beverages at fountains?
A. Yes, sir; soda water, and taking ice cream and soda chocolate.
Q. From your personal knowledge of Coca-Cola with respect to its use by yourself and other persons, is Coca-Cola, or other caffeine-containing beverages, — habit-forming?
A. That has not been my experience or observations.
Q. Do you know the young lady who is the telephone operator at the Piedmont Hotel in Atlanta?
A. Yes, sir; I know two or three different ones there. They have several.
Q. You say there are a number of them?
A. Yes, sir; I think they have three or four there.
Q. Are you the house physician of that hotel?
A. Yes, sir.
Q. Well, what about the condition of health of those telephone operators there with regard to taking substances containing caffeine?
A. I see they drink Coca-Cola occasionally; I do not know how many glasses they take a day, I see them taking it daily, I see that they do it; they have them sent in.
Q. Have you seen them sent in there?
A. Yes, sir.

Q. Are you ever called to wait on them on account of any nervous disorders?

A. No, sir. Sometimes they have derangements like other people have, biliousness and something of that kind, nothing specially, though.

Q. Do any of them suffer from any disorder that you could trace to the taking of Coca-Cola or any other caffeine-containing drink?

A. No, sir; I could not trace it to that, I could trace it more to the work that they have to do than to Coca-Cola.

CROSS-EXAMINATION,

BY MR. MILLER:

Q. Are you qualified to the extent of stating what is the physiological effect of caffeine on the human system?

A. Well, I know so far as my own observation and reading goes—I am not an expert on the physiological effect of caffeine, and am not a physiologist, I am just a common, ordinary, general practitioner of medicine.

Q. Do you qualify as to the pharmacological action of caffeine on the human system?

A. No, sir.

Q. Are you acquainted with or have you ever read the work of Doctor Hare, entitled: "Practical Therapeutics"?

A. I have read that; I do not remember everything that Doctor Hare says, probably he will tell you.

Q. Are you acquainted with Doctor Hare?

A. I know Doctor Hare.

Mr. Sizer: So far as this witness is concerned, he is not an expert ——

Mr. Miller: I do not care to examine him as an expert. They asked him as to the effect of caffeine.

Mr. Sizer: I did not.

The Court: I understood the question to be very carefully limited to his observations and personal experience. He was not asked any question as a general expert.

Mr. Miller: If he does not undertake to testify as to the effects of caffeine ——

The Court: Only in matters that came within his own personal experience.

BY MR. MILLER:

Q. Because you are the house physician at the Piedmont Hotel, that does not, of course, require you to wait on everybody that is in the hotel; people who come there have the privilege of getting whom they please?

A. Yes, sir, and can get a better physician.

Q. And they can get a better physician?
A. Yes, sir.
(Witness excused.)

Mr. Sizer: We have the depositions which were taken in Atlanta of a certain number of witnesses among the hundred subjects examined there and desire to offer them in evidence.

Mr. Chandler: I will now read the following depositions:

B. B. WEISBERG,

the first witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH.

Q. What is your name?
A. My full name, you mean?
Q. Yes, what is your name?
A. B. B. Weisberg.
Q. What is your occupation, Mr. Weisberg?
A. Manufacturer.
Q. What is your age?
A. I am now thirty years old.
The Court: I exclude all that as to insurance.
(The following evidence is that part excluded by the Court:)
Q. How many life insurance companies are you insured in?
A. Three.
Q. How many policies have you, Mr. Weisberg.
A. I have nine.
Q. Could you give me the date of the insurance of the first and last policies?
A. Let me see — ten years ago, the date of the first policy, that is about it, then the last one about a year — that would make the first one about eleven years ago, or maybe twelve years.
Q. And when was the last one taken out?
A. Within the past year.
Q. What is the full amount of your insurance?
A. Fifteen thousand dollars.
Q. Have you ever been refused any insurance?
A. No, never.
Q. Do you go to the soda fountains or frequent soda fountains or take drinks at soda fountains?
A. Yes, sir.

Q. And what drinks do you take?
A. Coca-Cola, usually.
Q. How long have you used Coca-Cola?
A. I guess I have been using Coca-Cola, possibly for the last fourteen or fifteen years.
Q. Could you give me about the dates that you started using it?
A. About in 1896.
Q. What, if any amount, or I will ask you what has been about the average amount that you have taken during that time, I mean of Coca-Cola?
A. I guess now for the last couple of years I have averaged three a day.
Q. Are you using it at the present time?
A. Yes.
Q. And at the rate of about how many a day?
A. Three.
Q. Do you use coffee now?
A. Yes, sir.
Q. About how much coffee on an average?
A. About three a day.
Q. You use tea?
A. Never.
Q. Do you use cocoa?
A. Never.
Q. Do you use tobacco?
A. Yes.
Q. Well, in what form?
A. Cigars and cigarettes.
Q. You use alcohol?
A. No.
Q. Do you use any other stimulant or sedatives?
A. No.
Q. As far as you know, how does coca cola affect you?
A. Well, there is no effect. I like the taste of it, that is all.
Q. Are you in perfect health, so far as you know?
A. Yes, sir.
Q. Have you had any serious illness in the last five years?
A. No, sir.
Q. I now hand you a paper, and I will ask you if this is your signature?
A. Yes, sir.
Q. Well now, Mr. Weisberg, where was that paper signed?
A. That paper was signed, let me see, at Mr. Boland's office.

Q. Is he a doctor?
A. Yes, sir.
Q. Do you know who else was present when that was signed, was there any other doctor present.
A. Doctor Stewart Roberts was present.
Q. Mr. Weisberg, are the statements made in that blank form true?
A. Yes, sir.
Q. And is that your signature to it?
A. Yes, sir.
Q. Mr. Weisberg, you stated you had used coffee on an average of three cups a day?
A. Yes, sir.
Q. Do you ever increase the amount of coffee that you do use?
A. I do not know that I have ever done so.
Q. Have you ever had any desire to increase the amount of coffee that you do use?
A. No, sir.

NO CROSS EXAMINATION.

Mr. Hirsch: I now offer in evidence this blank, and will ask the stenographer to attach it to the deposition of this witness.
Mr. Miller: I object to the introduction of the blank.
The Court: The objection is sustained and the blank is excluded.
Subscribed and sworn to before
HARRISON JONES,
Notary Public,
Atlanta, Georgia, March 9, 1911.

R. T. MORRISON,
the next witness, of lawful age, called on behalf of the complainant, the Coca-Cola Company, first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. My full name is Hal Terrell Morrison.
Q. And what is your occupation, Mr. Morrison?
A. I am an electrician or solicitor.
Q. With what company?
A. The Georgia Railway & Electric Company.
Q. And what is your age?
A. I am twenty-six years old.
Q. Do you carry any life insurance, any insurance in

any life insurance company?

The Court: I exclude all evidence as to insurance.

(The evidence excluded by the court is as follows:

A. Yes, sir.

Q. How many policies do you carry?

A. Only one.

Q. Do you know the date of the issuance of the policy? can you give us the date of the issuance of this policy?

A. Well, I said one — one was February 24, 1908, I think.

Q. And what is the total amount?

A. Well, that one is two thousand dollars; and I have another one of a thousand dollars.

Q. You say the first one is two thousand and that you have another of one thousand?

A. Yes, sir.

Q. Have you ever been refused life insurance?

A. No, sir.

Q. Have you ever been refused any insurance that you applied for.

A. No, sir.

Q. Have you been a frequenter of soda fountains?

A. Yes, sir.

Q. What drink do you call for when you do frequent soda fountains?

A. Coca-Cola.

Q: How long have you used Coca-Cola?

A. I have used it for the last ten or twelve years.

Q. Could you give me the average or approximate amount that you have daily used?

A. Well, it has been in the past about four or five a day.

Q. Do you use it now?

A. Not so much as I have been using it.

Q. Why did you stop using it?

A. Because it cost too much money.

Q. Do you use coffee?

A. In the winter time.

Q. Do you drink it in the summer at all?

A. No, sir.

Q. Do you use tea?

A. Yes, in the summer.

Q. Do you use cocoa?

A. No.

Q. Do you use tobacco?

A. Yes, sir.

Q. Do you use alcohol?

A. No, sir.

Q. Do you use any other stimulant or sedative?
A. No, sir.
Q. How does Coca-Cola affect you?
A. It don't affect me at all.
Q. Are you in perfect health, so far as you know?
A. I am.
Q. Have you had any serious illness during the last five years.
A. No, sir.
Q. I now hand you this paper, is that your signature?
A. It is.
Q. Where was that paper signed?
A. It was signed in this building.
Q. Well, in whose office was it signed?
A. Some Doctor's office.
Q. Do you remember the names of the doctors who were there?
A. No, you introduced them to me, but I don't remember their names, you know I meet so many people.
Q. Did this doctor that you met at the time you signed that paper, did these doctors, I mean, did they not examine you?
A. They did examine me.
Q. At the time of your examination that you refer to, had you been spoken to immediately before the examination was made of you?
A. Yes, sir.
Q. Now, Mr. Morrison, look at that paper.
A. All right sir. (Witness examine paper.)
Q. Is this paper, the statements in it true?
A. Yes, sir, of course it is true.

Mr. Hirsch: I ask the reporter to mark this paper exhibit to this witness's deposition. I desire to offer this paper as a part of the evidence of this witness.

(On objection of Mr. Miller the blank is excluded by the Court.)

"H. C. HEINZ,

the next witness, called on behalf of the claimant and intervenor, the Coca-Cola Company, being of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. Henry Charles Heinz.
Q. And what is your occupation?
A. Banking.
Q. What is your age, Mr. Heinz?

A. I am thirty.

Q. Do you carry any insurance?"

(This evidence was excluded by the court, which is as follows):

A. Yes, sir.

Q. How many policies have you?

A. Four.

Q. Do you know the date of the issuance of the first and last policy?

A. No, I do not exactly.

Q. Could you give them to me approximately?

A. Well, one thousand dollars in the Union Central, dated in 1890, and three one thousand dollar policies in the Northern, dated 1909.

Q. Could you give me the total amount of your insurance?

A. Yes, five thousand dollars.

Q. Have you ever been refused life insurance?

A. No.

"Q. Mr. Heinz, do you take any drinks at soda fountains?

A. I do.

Q. What drinks do you usually take?

A. Mostly Coca-Cola.

Q. How long have you used Coca-Cola?

A. Fifteen years.

Q. Could you give me the average amount daily you have used during that period approximately?

A. Approximately three to four glasses.

Q. What is your present daily use of Coca-Cola?

A. Four glasses approximately.

Q. Do you use coffee?

A. Rarely ever.

Q. Or tea?

A. No, sir.

Q. Or Cocoa?

A. I do not.

Q. Do you use tobacco?

A. I smoke cigars and a pipe.

Q. Do you use alcohol, Mr. Heinz?

A. Moderately.

Q. Do you use any other stimulant or narcotic?

A. No, sir.

Q. How does Coca-Cola affect you?

A. Well, so far as I have been able to find out, it has no effect on me.

Q. Well, are you in perfect health as far as you know?

A. I am.

Q. Have you had any serious illness during the last five years?

A. I was never sick a day in my life.

Q. Do you have any desire to increase the number of Coca-Colas that you take?

A. No, sir.

Q. Have you any desire to drink, coffee, I mean increase the amount of coffee that you drink?

A. I have not.

Q. I hand you this paper, is this your signature?

A. It is.

Q. Well, examine that paper carefully and tell me whether the answers to the questions therein are the truth?

A. They are.

Q. Mr. Heinz, do you remember under what circumstances that paper was signed and where?

A. Well, after a very close physical examination up in Dr. Boland's office, or Dr. Robert's office, I disremember.

Q. What doctors were present?

A. Dr. Frank Boland and Dr. Stewart Roberts and another doctor, I forget just now.

Q. Why do you drink Coca-Cola, Mr. Heinz?

A. Because I enjoy the drink.

Mr. Hirsch: I desire to offer the statement handed the witness in evidence, and will ask the reporter to mark the same as exhibit to the testimony of the witness".

(On objection of Mr. Miller the blank is excluded by the Court.)

"BY MR. HIRSCH:

Q. Mr. Heinz, do you travel a great deal?

A. Well, in vacation, in summer time.

Q. Do you drink an equal number of glasses of Coca-Cola when you are away from Atlanta as when you are in Atlanta?

A. Yes, sir, I do."

NO CROSS EXAMINATION.

Subscribed and sworn to before Harrison Jones, a Notary Public of Atlanta, Ga., this 9th day of March, 1911.

ROBERT J. GUINN,

the next witness, called on behalf of the intervenor, the Coca-Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your occupation?

A. Life Insurance.
Q. What is your age?
A. Forty-four.
Q. How many life insurance companies are you insured in?

(The evidence as to life insurance was excluded by the Court, which is as follows:)

A. I am insured in three.
Q. Can you give us the number of policies?
A. You want the number of them?
Q. Yes.
A. You mean the amount?
Q. No; the number of policies; how many in number?
A. Well, I have got six in one company and two in one, and one in another.
Q. Can you give me the date of the issuance of the first policy approximately, or when the first policy was issued?
A. It was issued in 1892.
Q. Can you give me the date of the issuance of the last policy?
A. Yes, 1909.
Q. Have you been refused insurance, Major Guinn?
A. Well, not for sixteen or eighteen years, I was not refused them. I have had a different kind of a policy offered me, I applied for one kind and got another, but that was, as I recall now, on account of my weight, excess in weight.
Q. Well, do you frequent soda water fountains?
A. Yes, sir, some times.
Q. What drink do you take, if you take anything, or when you take anything?
A. I drink Coca-Cola and lime, chocolate, cream soda.
Q. How long have you used Coca-Cola, Major Guinn?
A. I don't know, several years, or so probably I have been drinking it at fountains.
Q. Can you give us approximately, about how many years?
A. Really, I do not know, but I reckon I have been drinking it off and on ever since it came out.
Q. Can you give us about your average daily drinking of Coca-Cola?
A. Well, I don't average any daily. I sometimes drink a glass and sometimes two glasses. I never drink over two glasses a day.
Q. Do you drink two glasses every day?
A. No, sir.
Q. Do you use coffee, Major?
A. Yes, sir, but I have only been using that far a few

years; I used to use it regularly, and I had to cut it out, and the last two or three years, I have been using it twice a day at least.

Q. Do you use tea?

A. Yes sir, at times.

Q. Do you use alcohol?

A. Only as a sort of medicine, sometimes I take a drink at home if I want it.

Q. Do you use any other stimulants or sedatives?

A. No sir, except tobacco.

Q. How does Coca-Cola affect you, if it all?

A. You mean in what way?

Q. Yes, does it affect you in any way?

A. Well, it is a pleasing sort of a drink, I enjoy drinking it, I know that.

Q. Are you in perfect health, so far as you know?

A. Yes, sir, as far as I know; my digestion is not good all of the time.

Q. Have you had any serious illness during the last five years?

A. I never had any in my life that I know of.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. I do not believe that you stated your residence?

A. Atlanta, Georgia, I supposed I stated that.

Q. Where do you drink coffee — why did you quit coffee?

A. Why did I quit coffee?

Q. Yes.

A. My digestion got out of fix and I was eliminating a whole lot of things to find out what was doing me the harm, and I struck upon the idea of drinking just as much hot water for breakfast as I could stand, and did not feel like drinking much of anything.

Q. Then you were having trouble with your stomach?

A. Yes, sir, that was ten or twelve years ago."

(The following, in reference to life insurance was excluded by the Court:)

Q. Well, how about this insurance that you were turned down on that you applied for?

A. That was because of excessive weight I weighed at the time I made the application two hundred and thirty-five pounds, and that was too heavy for my height and age.

Q. Well, now the great number of drinks that you take at soda fountains, you don't take those every day, this number of drinks that you speak of, of lime, chocolate, and so on?

A. Oh no, very frequently, for instance, I have not taken anything at a soda fountain. You see that was just to show that when I went in, the line of drinks that I would take, I was giving about the line of my drinks there.

Q. Then you frequently take a drink at soda fountains?

A. I almost every day drink something — I always drink something at a soda fountain every day I suppose.

Q. Then you will average one a day?

A. Yes, I guess I will, but I don't always take the same drink, sometimes it is Lithia water.

Q. Did you ever keep an account of the Coca-Cola drinks that you have taken during a day?

A. No, I don't run any account of it, sometimes I drink a glass or two of Coca-Cola in the morning; it is a very refreshing sort of a drink to me, I like it in the summer, and if I were going out to take a drink, I think Coca-Cola is the best drink; of all bottled drinks I would rather have Coca-Cola.

Q. Is it a matter of taste or effect?

A. Well, I could not say as to whether there is any effect except the effect of or consequence of an agreeable drink for an occasion of that sort.

RE-EXAMINATION,
BY MR. HIRSCH:

Q. Major, is that your signature?

A. Yes.

Q. Now, under what condition did you sign that statement, Major?

A. Why I was examined by, if I recall, by a couple of doctors at the time. That is, it was in Mr. Roberts' office, I believe.

RE-CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. You went to their office for the purpose of being examined?

A. Yes, sir.

Q. You didn't go previous to that time?

A. No, sir.

Q. They didn't know anything about this ——

A. I was asked by, I believe it was Mr. Asa Warren Candler if I objected to having an examination made of myself, and I told him not in the least, and I think that he asked me if I would object to being examined.

Q. That was the only examination made?

A. Yes, sir, and about two or three days after they asked me if I could come up to Dr. Roberts, and I told them "yes".

Q. You were never examined before or since by them?
A. Well, no, not any similar examination to that.
Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Ga., March 9, 1911."

B. J. KING,

the next witness, called on behalf of the claimant, the Coca-Cola Company, of lawful age, being duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. My name is B. J. King.
Q. What is your occupation?
A. Banking.
Q. What is your age?
A. Twenty-eight.
(The following in reference to life insurance was excluded by the Court):
Q. How many life insurance companies, if any, are you insured in?
A. One.
Q. Do you know the date of the issuance of that policy?
A. No, I do not.
Q. What is the amount of the insurance?
A. Twenty-five hundred dollars.
Q. Have you ever been refused any insurance, Mr. King?
A. No, sir.
Q. Mr. King, do you go in to soda water fountains?
A. Yes, sir.
Q. What drinks do you take?
A. Usually Coca-Cola.
Q. How long have you used it approximately?
A. Oh, I guess twelve years.
Q. Could you give me about the average daily amount that you drink of Coca-Cola, I do not mean exactly.
A. Oh, about two glasses.
Q. What is your present daily use of it, if any?
A. About that amount.
Q. Two glasses you mean?
A. Yes, sir.
Q. Do you use coffee, Mr. King?
A. Yes, sir.
Q. About how much?
A. Two cups a day.

Q. Do you use tea?
A. No, sir.
Q. Do you use cocoa?
A. No, sir.
Q. Do you use tobacco?
A. Yes, sir.
Q. About how much, and in what form?
A. I smoke three or four cigars a day.
Q. Do you use alcohol?
A. No, sir.
Q. Do you use any other stimulant or sedative?
A. No, sir.
Q, Are you in perfect health so far as you know?
A. Yes, sir.
Q. Have you had any serious illness during the last five years?
A. No, sir.
Q. Look at that statement and tell me if that is your signature?
A. Yes, sir.
Q. Under what circumstances did you sign that paper, Mr. King, and where?
A. What do you mean by that?
Q. Where were you.
A. Stewart Roberts' office.
Q. And who is he?
A. A doctor, a physician.
Q. Was there any other physician present then?
A. Yes, sir.
Q. Do you remember their names?
A. No sir — wait a minute — let me see now — oh, I have forgotten his name, I don't remember now.
Q. Was Dr. Boland present?
A. No, sir.
Q. Was Dr. Faullin present?
A. Yes, sir.
Q. Did either of these doctors make an examination of you at the time you signed this paper.
A. Yes, sir.
Q. Do you live in Atlanta, Georgia?
A. Yes, sir.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. How much coffee do you drink, Mr. King?
A. About two cups a day.
Q. In the morning and evening?
A. Yes, sir.

Q. And drink Coca-Cola in between?
A. Yes, sir.
Q. Usually two a day?
A. Yes, sir.
Q. What is your height?
A. About five feet, ten inches.
Q. And what is your weight?
A. About a hundred thirty-eight.
(The following in reference to life insurance was excluded by the Court):
Q. Have you ever been rejected for insurance?
A. No, sir, never have.
"Q. This examination that you spoke of was made about how long ago?
A. The date is on there. About six months ago, I think.
Q. Were you ever examined by these physicians before that?
A. No, sir.
Q. Or subsequent to that?
A. No, sir.
Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Ga., March 9, 1911."

"SAMUEL FRANCIS BOYKIN,
the next witness, called on behalf of the claimant, the Coca-Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. Samuel Francis Boykin.
Q. What is your occupation?
A. I am Vice-President and Manager of the E. F. Pratt Laboratory.
Q. What is the nature of that business?
A. They are manufacturing chemists.
Q. What is your age?
A. Thirty-seven my next birthday."
(The following in reference to life insurance was excluded by the Court):
Q. How many life insurance companies are you insured in?
A. Four I think, the Prudential, the Volunteer State Life, and the Aetna, and some secret orders insurance, four I think.
Q. How many policies are there, just give me the nuber of policies?

A. I have two in the Prudential, two in the Volunteer State Life, one in the Actna and one in the Royal Arcanum.

Q. Do you remember the date of the issuance of the first policy, Mr. Boykin?

A. No sir, I do not.

Q. Can you give it to me approximately?

A. It is about '94 or '95, I should think.

Q. What is the total amount in dollars of your insurance?

A. Did you say the total?

Q. Yes.

A. Fifteen thousand dollars.

Q. Have you ever been refused insurance?

A. Yes, sir, by the Northwestern.

Q. What was the date of that refusal?

A. Well, I came to Atlanta in 1891, I think it was about 1894 or 1895.

Q. What was the reason assigned for it?

A. Heart murmur.

Q. Mr. Boykin, do you frequent soda water fountains?

A. Yes, sir.

Q. What drink, if any, do you take?

A. I usually take Coca Cola.

Q. How long have you been using Coca Cola?

A. I expect for twenty years.

Q. Could you give me about the amount you use, average daily use of Coca Cola?

A. Yes, sir, I always take two, and I expect on occasions I drink three or four or five, I mean on Sundays, that I drink about three or four or five.

Q. Do you use coffee?

A. Yes, sir.

Q. Give me about the amount of coffee?

A. Well, I usually use coffee morning and night in the winter, and morning only in the summer; I drink tea in the summer at night.

Q. Do you use cocoa?

A. No, sir.

Q. Do you use tobacco?

A. Yes, sir.

Q. About how much?

A. I suppose somewhere from four to five cigars a day, and I also chew.

Q. Do you use alcohol?

A. No, sir, not at all.

Q. How does Coca Cola affect you, Mr. Boykin?

A. Not at all, just the same as water.

Q. Are you in perfect health so far as you know?
A. Yes, sir.
Q. Have you had any serious illness during the last five years?
A. No, sir, I had typhoid fever in 1898, yes, about 1897 or 1898.
Q. Mr. Boykin, I hand you this paper, is that your signature?
A. Yes, sir.
Q. Under what circumstances and where were you and what were the conditions that you signed that paper under? First, I will ask you where were you when you signed that?
A. I was in this building.
Q. Whereabouts in this building?
A. In a Doctor's office, I forget the name of the Doctor now.
Q. Dr. Roberts' office?
A. Yes, sir.
Q. Was Dr. Roberts present?
A. Yes, sir, and also a doctor over here at the State capital.
Q. Was that Dr. Paullin?
A. Yes, sir, Harris's assistant.
Q. Did these doctors examine you?
A. Yes, sir.

CROSS EXAMINATION,

BY MR. McCONNVILLE:

Q. Did you say that you drink two glasses of Coca Cola every day and three or four on Sunday? How long have you been doing that?
A. Well, I don't know, I suppose I have been drinking Coca Cola for twenty years, and I suppose for the last ten years I have been drinking that much, more or less.
Q. How do you know the number of glasses you drink?
A. Because I drink one of a morning and one in the evening.
Q. Invariably?
A. Yes, sir, as a rule.
Q. As a rule — would you mean invariably by that?
A. Yes, sir, when in Atlanta I do.
Q. Were you in Atlanta most of the time?
A. Yes, sir.
Q. You never missed any days?
A. Why, I can't say that if I am at home.

Q. You won't say you do drink it, but your opinion is that you drink two a day?
A. If I am at my office I do, if I am not at home."

(The following in reference to life insurance was excluded by the Court):

Q. Now this time that you were turned down for insurance, you say that was sixteen years ago?
A. Well, that was about 1894, as I recall. The doctor says that it was from excessive bicycle riding; about that time everybody was crazy on the subject of bicycles, and I rode a great deal.
Q. Well, what was the trouble with your heart?
A. Heart murmur was what the doctor said, but I have since gotten insurance.
Q. There is no trouble with your heart now?
A. No, I don't think so.
"Q. Have you been examined recently other than this examination about which you have been asked?
A. Yes, less than a year ago.
Q. You were never examined by these particular people before or after that time?
A. No, sir."

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March 9, 1911.

"WILLIAM PRATT HEATH,
the next witness called on behalf of the claimant, the Coca Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. William Pratt Heath.
Q. What is your occupation?
A. I am a chemist at the Pratt Laboratory.
Q. What is your age?
A. Thirty-five."

(The following in reference to life insurance was excluded by the Court):

Q. How many life insurance companies are you insured in, if any?
A. Four, I think.

Q. How many policies, number of policies have you?
A. I have five.
Q. Mr. Heath, do you remember the date of the issuance of the first of your policies?
A. The first one is about I think about thirteen years old.
Q. The first policy is thirteen years old?
A. Yes, sir.
Q. Do you remember the date of the issuance of the last one?
A. The last one has been about thirty days.
Q. What is the total amount in dollars of your insurance?
A. Nine thousand dollars.
Q. Have you ever been refused insurance?
A. No, sir.
"Q. Do you go into soda water fountains?
A. Yes, sir.
Q. Do you take drinks there; soft drinks?
A. Yes, sir.
Q. What drinks do you take?
A. I nearly always drink Coca Cola.
Q. How long have you been drinking Coca Cola, Mr. Heath?
A. Over ten years.
Q. Could you give me approximately the amount of Coca Cola that you use a day, the average amount approximately?
A. Two a day, one in the morning and one in the afternoon, and sometimes three a day.
Q. Do you drink them on Sunday?
A. Yes, sir.
Q. Do you use coffee, Mr. Heath?
A. Yes, sir.
Q. How much coffee a day will you estimate?
A. Well ——
Q. (Interrupting) I don't ask you the exact amount.
A. One cup, and sometimes two cups.
Q. Do you use tea?
A. No.
Q. Do you use cocoa?
A. No, sir.
Q. Do you use tobacco?
A. No, sir.
Q. Do you use alcohol?
A. No, sir.
Q. Mr. Heath, are you in perfect health so far as you know?

A. Yes, sir.

Q. Have you had any serious illness during the last five years?

A. No, sir.

Q. Is that your signature to that paper?

A. Yes, sir.

Q. Under what circumstances and where did you sign that?

A. In the office of Dr. Boland and Dr. Roberts, I think.

Q. Did Dr. Boland and Roberts make a physical examination of you?

A. Boland, Roberts and Paullin, I think.

Q. You live in the City of Atlanta, Georgia?

A. Yes, sir.

Q. Do you go out of Atlanta, Georgia, much?

A. No, just occasionally a year.

Q. Do you drink Coca Cola when you go out of Atlanta?

A. No, if it don't taste right.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. You drink two glasses of Coca Cola a day?

A. Yes, sir, every day. I usually drink only one on Sunday, I drink on Sunday only one, and on week days two.

Q. On week days you drink two?

A. Yes, sir.

Q. How do you know that you drink two?

A. Well, ——

Q. Do you keep an account of it?

A. There might be a time when I would miss one, but nine days out of ten I drink two, one in the morning and one in the evening.

Q. Do you feel like you need it?

A. No, sir, I don't feel that I need it, it is a kind of a little recreation to step out of the office, and I generally go with a man who I know, and if he is not in town, very often I don't go.

Q. Then you do not get two every day?

A. No, not every day, I do not on Sundays.

Q. But I am speaking exclusively of Sundays.

A. Well, nine days out of ten, I says, that is about true."

Subscribed and sworn to before Harrison Jones, Notary Public at Atlanta, Georgia, March 9, 1911.

Whereupon at 12:00 o'clock M. the Court took a recess until 12:20 p. m.

AFTER RECESS:

Thereupon the Court is met at 12:20 o'clock p. m.

Mr. Candler: I will now read the following depositions:

"MELVIN W. HUBBARD,

the next witness called by the claimant, the Coca Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?

A. Melvin W. Hubbard.

Q. What is your occupation, Mr. Hubbard?

A. Furniture, manager of the furniture department of Rich Brothers.

Q. What is your age?

A. Thirty-nine, will be forty next December."

(The following in reference to life insurance was excluded by the Court):

Q. How many insurance companies are you insured in?

A. Two.

Q. How many policies have you?

A. Three.

Q. Do you remember the date of the issuance of the first policy?

A. Not exactly, it is seven years old, I think it is in September.

Q. Do you remember the date of the issuance of the last one?

A. 15th of November, two years ago.

Q. What is the total amount of the life insurance that you carry?

A. Seven thousand dollars.

Q. Have you ever been refused insurance?

A. No, sir.

"Q. Do you frequent soda fountains?

A. Pretty often.

Q. What drink or drinks do you take?

A. Coca Cola.

Q. How long have you used Coca Cola, approximately?

A. Somewhere between seventeen and eighteen years, it has been that long since I began to drink it.

Q. Now, approximately, what are the average number of drinks a day of Coca Cola that you take?

A. Two to three.

Q. Do you drink it on Sundays the same way?

A. Yes, sir.

Q. Do you go out of the city any, Mr. Hubbard?
A. About four times a year.
Q. Where do you go?
A. To Chicago and Grand Rapids.
Q. Do you drink it while you are away?
A. No, sir.
Q. Do you use coffee?
A. Yes, sir.
Q. About how much?
A. A cup a day.
Q. Do you use tea?
A. No.
Q. Do you use cocoa?
A. No, sir.
Q. Do you use tobacco, and if so, in what form?
A. I smoke.
Q. How many cigars do you smoke a day?
A. About five.
Q. Do you use alcohol?
A. No, not enough to say that I use it.
Q. Mr. Hubbard, how does Coca Cola affect you, if in any way?
A. I can't see that it affects me at all.
Q. Are you in perfect health so far as you know?
A. Yes, sir, so far as I know.
Q. Have you had any serious illness during the last five years?
A. Well, five years ago, in September, I had typhoid fever.
Q. Is this your signature to this paper?
A. Yes, sir.
Q. Where were you when you signed that?
A. In Dr. Roberts' and doctor somebody else's office upstairs here.
Q. Was it Dr. Boland?
A. Yes, sir.
Q. Did these doctors examine you?
A. Yes, sir, they did.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. Are these doctors your family physicians?
A. No, sir.
Q. Did you ever meet them before this examination?
A. Dr. Roberts and Dr. Boland, you mean?
Q. Yes, I mean professionally?
A. No, sir.
Q. They never made any examination of you prior to

that time or subsequent to that time?

A. No, sir.

Q. You say you drink at least two glasses of Coca Cola?

A. Yes, sir, two to three and sometimes more, I will average two a day.

Q. You keep a record of that fact, do you, or do you remember the number of drinks?

A. No, I don't keep a record of it.

Q. Do you remember the number of drinks?

A. Yes, sir.

Q. Then how do you know that you take it, the quantity you have stated?

A. Well, about how often that I get out is when I take one, just when I get thirsty.

Q. Well, if you do not get out, then what happens?

A. Well, we have got a place in the store, it is usually handy.

Q. You must have it?

A. No — No.

Q. You say you do not have to have it?

A. No, I drink it about as I drink a glass of water, water will do me just about as well."

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March, 9, 1911.

"CARLOS LYENS,

the next witness called by the claimant, the Coca Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?

A. Carlos Lyens.

Q. Mr. Lyens, what is your occupation?

A. Real estate.

Q. What is your age?

A. Thirty-six."

(The following in reference to life insurance was excluded by the Court):

Q. Is your life insured?

A. Yes, sir.

Q. In how many companies?

A. Only one at the present, in the Union Central.

Q. Do you remember the date of the issuance of that policy?

A. It was about seven or eight years ago.

Q. What is the amount of that?

A. Six thousand dollars.

Q. Have you ever been refused life insurance?
A. No.
"Q. Mr. Lyens, do you go into soda fountains quite often?
A. Well, I just came from one.
Q. Do you take any drinks in there?
A. Yes, sir.
Q. What drinks do you take, Mr. Lyens?
A. Principally Coca Cola.
Q. How long have you used Coca Cola?
A. Why, I suppose between fifteen and twenty years, somewhere along there, ever since I have been large enough to go up to the soda fountain.
Q. Could you give me approximately the average number of Coca Colas that you take?
A. About two, that is about my present daily average, about two.
Q. Do you use coffee?
A. No.
Q. Do you use tea?
A. No.
Q. Do you use cocoa?
A. No.
Q. Do you use tobacco?
A. Yes, sir.
Q. In what form?
A. Cigars and cigarettes and pipe.
Q. Do you chew?
A. No, sir.
Q. Do you smoke extensively?
A. Yes, sir.
Q. Do you use alcohol?
A. Yes.
Q. Excessively?
A. No, I hope not.
Q. Mr. Lyens, how does Coca Cola affect you?
A. Not that I know of, I never experienced any effects from it to amount to anything.
Q. Are you in perfect health so far as you know?
A. Yes, sir.
Q. Have you had any serious illness during the last five years?
A. No, sir.
Q. I hand you this paper, is that your signature?
A. Yes, sir.
Q. Where was that signed?
A. In a doctor's office here in this building.
Q. Do you remember the name of the doctor?

A. I do not.
Q. Did this doctor examine you?
A. Yes, sir, it was rather thorough.
Q. Do you go out of the city much?
A. No, sir.
Q. When was the last time you were out of the city?
A. Why last December a year ago.
Q. Do you drink Coca Cola while away from here?
A. Yes, sir, that was in Washington, D. C.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. You drink two glasses?
A. Yes, sir.
Q. Invariably?
A. Yes, sir, usually right after I come into town — I live out in the country — I come in about between eight and nine, and usually about half an hour after I get to the office in the morning I take one, and then about half hour after I get back from dinner. I never drink it at night.
Q. Why do you want Coca Cola?
A. Well, just force of habit I guess more than anything else."

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March 9, 1911.

"HENRY SANDERS ROWLAND,
the next witness called by the claimant, the Coca Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. Henry Sanders Rowland.
Q. What is your occupation?
A. Bookkeeper.
Q. What is your age?
A. Well, I will be thirty-seven in April."

(The following in reference to life insurance was excluded by the Court):

"Q. Mr. Rowland, do you carry any life insurance?
A. Do I carry what?
Q. I say, do you carry any life insurance, any insurance in any life insurance companies?
A. Yes, sir.
Q. How many insurance companies are you insured in?
A. Three.
Q. How many policies have you got, I mean in number?

A. Do you want the accident policies, too?
Q. No, you may exclude that.
A. Well, eight.
Q. What is the date of the issuance of the first policy?
A. Well, I don't remember, but it has been possibly ten years ago.
Q. Do you remember the date of the issuance of your last one?
A. Yes, sir, that has been about, I believe I have paid my fourth premium.
Q. Then it would have been about four years since you took out the last one?
A. Yes, sir.
Q. What is the total amount of insurance in dollars that you have?
A. Well, it is about twelve thousand dollars.
Q. Have you ever been refused any insurance?
A. No, sir.
"Q. Where are you employed at present?
A. At the Bowden Lithia Water Springs Company.
Q. How long have you been there?
A. Ten days.
Q. Where were you before that time?
A. With the Coca Cola Company.
Q. In what respect?
A. Bookkeeper.
Q. Mr. Rowland, do you go into soda fountains any?
A. Yes, sir.
Q. What drinks, if any, do you take?
A. I drink Coca Cola.
Q. Anything else?
A. Lime and lithia.
Q. How long have you used Coca Cola?
A. How long?
Q. Yes, about?
A. I guess seventeen years?
Q. Could you give me about the average daily use of Coca Cola, I mean your average daily use?
A. Well, about six glasses a day.
Q. Your present daily use is about that, is it?
A. I have to buy it now — possibly I average three a day now.
Q. Do you use coffee?
A. Yes, sir.
Q. How much coffee do you drink a day?
A. One cup.
Q. Do you use tea?
A. Well, occasionally.

Q. Do you use alcohol?
A. No, sir.
Q. Do you use tobacco?
A. Yes, sir.
Q. In what form?
A. Well, moderately, I smoke cigars.
Q. Do you chew tobacco?
A. Not at the present, I have chewed it.
Q. How does Coca Cola affect you, if in any way at all?
A. Not at all.
Q. Are you in perfect health so far as you know?
A. Yes, sir.
Q. Have you had any serious illness during the last five years?
A. No.
Q. Mr. Rowland, is that your signature there to that paper?
A. Yes, sir.
Q. Where was that signed and under what conditions and circumstances?
A. That was signed in this building, I forget the doctor's office, there were at the time making some tests.
Q. Do you remember the names of the doctors that were present when that was signed?
A. I do not.
Q. Was Dr. Roberts present, Stewart Roberts?
A. I declare, Mr. Hirsch, I never saw them before, and was just introduced to them you know.
Q. Did these doctors examine you?
A. Yes, sir, they did.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. This number of Coca Colas you drink, about how long a time have you been doing this?
A. About three glasses a day now.
Q. About three glasses a day now?
A. Yes, sir.
Q. Are either of those exact figures?
A. Oh, yes, when I was with the Coca Cola Company I rarely ever drank anything without Coca Cola in it.
Q. You did not number the glasses?
A. Yes, sir, I have drank more than that.
Q. You will state that as an average?
A. Yes, sir.
Q. You drank six a day while you were with the Coca Cola Company?
A. Yes, sir.

Q. I was trying to find out how you struck that average?

A. Well, some days I would not drink but three or four, other days I would drink eight or ten, it was owing to how my thirst was. Sometimes, you know a man won't drink any water at all.

Q. Oh, yes, I understand.

A. Well, that was the way it was with me.

RE-EXAMINATION,
BY MR. HIRSCH:

Q. Do you drink as much in the winter as you do in the summer, or is it about the same?

A. Well, no, of course in summer it is hot and you get thirsty, and I want a nice drink, something that is cooling more than I do in the winter time."

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March 9, 1911.

"EDWARD EMMETT DOUGHERTY,
the next witness called on behalf of the claimant, the Coca Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?

A. Edward Emmett Dougherty.

Q. What is your occupation, Mr. Dougherty?

A. I am an architect.

Q. How old are you?

A. Thirty-four."

(The following in reference to life insurance was excluded by the Court):

Q. Do you carry any insurance, Mr. Dougherty?

A. Yes, sir.

Q. How many life insurance companies are you insured in?

A. One.

Q. What amount of dollars of insurance in that policy?

A. Five thousand dollars.

Q. Have you ever been refused life insurance?

A. No, sir.

"Q. Do you go into soda fountains?

A. Yes, very often.

Q. What drinks, if any, do you take?

A. I generally take Coca Cola.

Q. How long have you used Coca Cola, Mr. Dougherty?
A. I think I began when it was first manufactured. I went abroad and was without it for five or six years and didn't have any, and came back and began taking it again.
Q. How, during the time that you were drinking Coca Cola, about what was your average daily amount, in drinks that you took.
A. I suppose I would average two a day.
Q. Would that constitute your daily drinking of Coca Cola?
A. You mean the number of drinks a day?
Q. Yes.
A. Practically the same.
Q. That is your present daily number?
A. Yes, sir.
Q. Do you go out of the city a great deal, Mr. Dougherty?
A. Sometimes, yes.
Q. Do you go East very often?
A. Yes, sir.
Q. Do you drink the same there as you do here?
A. I don't find that it tastes exactly the same in the East.
Q. Do you drink it?
A. No, sir, I don't drink it much because I don't think it is as good as it is here.
Q. Do you use coffee?
A. Yes, sir.
Q. About how much coffee?
A. Well, about one cup a day.
Q. One cup a day?
A. Yes, sir, and sometimes two.
Q. Do you use tea?
A. Sometimes, but not often.
Q. Do you use cocoa?
A. Very seldom.
Q. Do you use tobacco?
A. Yes, sir.
Q. In what form?
A. Cigars.
Q. About how many a day do you use?
A. About six a day.
Q. Mr. Dougherty, does Coca Cola have any effect on you?
A. Coca Cola — why I know it does not, I have never noticed any.
Q. Are you in perfect health so far as you know?
A. Yes, sir.

Q. Have you had any serious illness during the last five years?

A. No, sir.

Q. I hand you this paper with your signature to it, Mr. Dougherty. Is that your signature?

A. Yes, sir.

Q. Where was that signed, do you remember?

A. I can't say that I do remember just where I was.

Q. Do you remember under what conditions you signed it — were any doctors present?

A. Yes, I think so. I am not sure, but I think that is the paper that I signed when I was in Dr. Boland's office.

Q. Was Dr. Roberts present?

A. Yes, sir.

Q. Did those doctors make an examination of you?

A. Yes, sir.

CROSS EXAMINATION,

BY MR. McCONNVILLE:

Q. How often do you leave Atlanta?

A. I generally get away once or twice a year.

Q. What length of time are you gone away?

A. Generally I get to New York once a year to spend a week or two.

Q. You don't drink Coca Cola in New York?

A. I have perhaps had two or three Coca Colas up there?

Q. You don't like it.

A. I don't like it as well as I do here, I find that it does not taste anything like it does here.

Q. Then you have used it in New York?

A. I have drank it there.

Q. Does it have any effect or anything like that on you?

A. No, no craving effect or anything like that. For instance, I ordinarily drink two a day, but I have only had one today. Then sometimes I will drink three a day, but I don't think I ever went over three.

Q. And you go some days without it?

A. Yes, sir, possibly so.

Q. Would you drink it if you could get it in New York?

A. Oh, you can get it in New York.

Q. I mean if you could get it there similar to what you get it in Atlanta?

A. Yes, sir, I think I would, but it don't put me out much if I don't get it though."

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March 9, 1911.

WILLIAM HENRY REYNOLDS,

the next witness called on behalf of the claimant, the Coca Cola Company, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. What is your full name?
A. William Henry Reynolds.
Q. What is your occupation?
A. Barber.
Q. Where is that barber shop located?
A. In the Candler Building.
Q. What is your age?
A. Thirty-seven."

(The following in reference to life insurance was excluded by the Court):

Q. How many life insurance companies are you insured in, if any?
A. One.
Q. What is the total amount in dollars of that insurance?
A. Twelve hundred dollars.
Q. Have you ever been refused insurance?
A. No, sir.

"Q. Mr. Reynolds, do you take any drinks at soda water fountains?
A. Yes, sir.
Q. What drink or drinks, if any?
A. Coca Cola, mostly.
Q. How long have you used Coca Cola?
A. Twelve to fifteen years.
Q. Mr. Reynolds, do you live in Atlanta?
A. Yes, sir.
Q. Do you ever leave Atlanta?
A. Yes, sir.
Q. And where do you go?
A. To New York State.
Q. Do you drink it in New York State?
A. Why, I never drank it up there.
Q. Well, when you are in Atlanta, what is your average a day that you drink of Coca Cola?
A. From four to six.
Q. Is that your average daily use of it?
A. Yes, sir.
Q. Do you drink coffee?
A. Yes, sir.
Q. Do you drink tea?

A. Yes, sir, some.
Q. Do you use cocoa?
A. No.
Q. Do you use alcohol, Mr. Reynolds?
A. Some.
Q. In what form?
A. Why beer and whisky, I don't use it as much as I used to.
Q. Do you use tobacco?
A. Yes, sir, smoke.
Q. What do you smoke?
A. Cigars and cigarettes.
Q. Do you smoke to any great extent?
A. Yes, sir.
Q. Mr. Reynolds, does Coca Cola affect you in any way?
A. No, sir, not in any way that I know of.
Q. Are you in perfect health so far as you know now?
A. Yes, sir.
Q. Have you had any serious illness during the last five years?
A. No, sir.
Q. I hand you this paper, is that your signature?
A. Yes, sir.
Q. Do you remember where you were when you signed it?
A. Dr. Roberts' and Dr. Boland's office.
Q. Did these doctors examine you at the time you signed that?
A. Yes, sir.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

Q. Are these two doctors your regular physicians?
A. Why, no.
Q. They never examined you before?
A. No, sir.
Q. How do you know you drink four or six glasses a day?
A. I always drink four.
Q. You always drink four?
A. Yes, sir, two in the morning and two in the afternoon, and sometimes I go up to as far as six.
Q. Why didn't you drink it in New York?
A. Why, I never liked it up there, you know it seems flat or dead.
Q. You have tried to get it up there?
A. I have gotten it up there.
Q. If you could get the same up there, you would drink

it there, would you?

A. Yes, sir, but the Coca Cola seems to be flat up there, and don't seem good to me.

Q. You have a craving for Coca Cola?

A. No, I don't think so.

Q. Well, then, why did you drink it so regularly?

A. Well, I like it as a rule — you asked me the reason why I drink it, I simply tell you I don't know.

Q. Does it have any effect on you if you do not get it?

A. I didn't understand you.

Q. Now, I say, does it have any ill effect on you if you do not get it regularly?

A. No."

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March 9, 1911.

"ROBERT IRVING GRESHAM,

the next witness called on behalf of the claimant, the Coca Cola Company, of lawful age, being first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH.

Q. Mr. Gresham, what is your full name?

A. Robert Irving Gresham.

Q. What is your occupation?

A. I am manager of Dahr, florist.

Q. What is your age, Mr. Gresham?

A. I was born in 1884, that would make me twenty-seven."

(The following in reference to life insurance was excluded by the Court):

Q. Do you carry any life insurance?

A. Yes, sir.

Q. How many companies do you carry life insurance in?

A. One.

Q. What is the value of that policy, the amount of it, the face value of it?

A. One thousand dollars.

Q. Have you ever been refused life insurance?

A. No, sir.

"Q. Do you go into soda fountains often?

A. Yes, sir.

Q. Do you take any drinks there?

A. Yes, sir.

Q. What drink or drinks do you take at soda fountains?

A. Coca Cola.

Q. How often do you use Coca Cola, for about how long?

A. Well, I answered that question before, I don't know what I did say right now. Years ago, I have used it for ten or twelve years though.

Q. Could you give me about the average amount of drinks of Coca Cola that you take a day?

A. Of Coca Cola?

Q. Yes.

A. Well, I believe anywhere from three to five, sometimes more and sometimes less.

Q. Do you drink it away from Atlanta?

A. Yes, sir.

Q. Do you use coffee?

A. Yes, sir.

Q. About how much?

A. A cup or two cups a day.

Q. Do you use tea?

A. No, sir.

Q. Do you use cocoa?

A. No, sir, I drink all of them but very little.

Q. Do you use alcohol in any form?

A. Yes, sir.

Q. Do you smoke?

A. No.

Q. Mr. Gresham, does Coca Cola affect you that you know of?

A. No.

Q. Are you in perfect health so far as you know?

A. Yes, I am.

Q. Have you had any serious illness during the last five years?

A. No.

Q. Mr. Gresham, is that your signature on that paper?

A. Yes, sir.

Q. Do you remember when and where you were when you signed that?

A. Yes, sir.

Q. Where was it?

A. It was in some doctor's office, I don't know what floor of the Candler Building.

Q. Do you remember the name of the doctor?

A. No, I do not remember his name.

Q. Was it Stewart R. Roberts, Dr. Frank L. Boland or Dr. J. Paullin?

A. Well, as far as my memory serves me right now, I did not take any note any way. I did not know them personally.

Q. Was it Dr. Frank Boland?
A. No, it was Roberts, he was the man.
Q. Did these doctors examine you?
A. Yes, sir.

CROSS EXAMINATION,
BY MR. McCONNVILLE:

(The following in reference to life insurance was excluded by the Court:

Q. When did you take out life insurance?
A. I think it has been about four years ago.
Q. Four years ago?
A. Yes, sir.
Q. Had you drank Coca Cola before that time?
A. Yes, sir.
Q. And subsequent?
A. Yes, sir, I have been drinking it I guess six or eight years, or had been before that time.

Subscribed and sworn to before Harrison Jones, Notary Public, Atlanta, Georgia, March 9, 1911.

"STIPULATION OF COUNSEL.

Atlanta, Georgia, March 9, 1911.

It is hereby stipulated by counsel that the following named persons would testify, if called as witnesses, substantially as the thirteen preceding witnesses, and that the claimant, the Coca Cola Company, may have the benefit by this stipulation of their testimony as if given, and that the slips showing examinations of these witnesses may be used and treated as proven, to as full an extent as testified to by the preceding thirteen witnesses in their depositions.

The persons whom this stipulation is intended to cover going as follows:

Revis, Wm. Farrell, medical student, Roswell, Ga.

Peters, Edgar, medical student, 93 Luckie St., 790 Spring St.

Heaton, Geo. Roy, medical student, 93 Luckie St., 92 Ellis St.

DeVane, James G., medical student, 93 Luckie St., 790 Spring St.

Massey, Nathan N., salesman, Coca Cola Co.

Rainwater, Chas. V., secretary Coca Cola Bottling Co., Candler Building.

Snyder, Chas. F., bookkeeper, 170 Mills St.

Rich, Lester H., merchant, 52-6 Whitehall St., 330 South Pryor St.

West, Robt. L., contractor, Candler Bldg.

Rogers, Virgial, salesman, city.

Logan, Jos. Clayton, manager Assc. Ch., Gould Bldg.
Fall, Mark A., auditor, Coca Cola Co., 770 Piedmont Av.
Underwood, Mar'. S., Gen. Elec. Co., Empire Bldg., 45 W. Baker St.
Morrison, Nellie I., saleslady.
Candler, Walter T., bank teller, Candler Bldg., 92 Euclid Av.
Massengale, G. B., adv. mgr., Candler Bldg., 474 Capitol Av.
Angier, Kedom L., clerk Massengale's, Candler Bldg., 30 Capitol Av.
Wright, A. R., stenographer, Candler Bldg., 131 Capitol Avenue.
Mashburn, W. O., cashier Coca Cola Co., Coca Cola Co., 212 Euclid Av.
Neville, C. R., shipping clerk, Coca Cola Co.
McEntyre, Mrs. Rosa, manicurist, Candler Bldg., 112 Mills St.
Powell, May, manicurist, (killed in accident.)
Owen, Willie Belle, stenographer, Candler Bldg., 11 Park Av.
Candler, A. W., lawyer, Candler Bldg.
Moore, Jno. W., lawyer, Temple Ct. Bldg.
Crumley, Wm. G., student, 40 Forrest Ave.
Hunter, Mary R., stenographer, Candler Bldg., 139 Forrest Av.
Langley, Emmet R., draper (Rich's), 52-6 Whitehall St., 73 Neal St.
Dobbs, Harry L., soda dispenser, 231 Marietta St.
Goodman, Chas. B., draughtsman, 67 N. Pryor St.
McKibben, J. A., elevator setter, Candler Bldg.
Brasswell, Jno. T., salesman, 53 Peachtree St., 20 Josephine St.
Owens, Jno. G., real estate, Candler Bldg.
Hirsch, Harold, lawyer, Candler Bldg.
Padgett, Ben R., contractor, Candler Bldg., East Lake.
Moxley, Hugh L., manager Sou. S. Co., College Park.
Jones, Mary Rhett, stenographer, 2 Wellington Apts.
Lindsay, Dorothy, cashier, Candler Bldg., 20 Ellis St.
Wells, Mrs. H. I., housekeeper, 69 W. Harris St.
Benson, Maggie M., clerk, 211 Angier Ave.
Wells, May, stenographer, 69 W. Harris St.
Little, Margaret, stenographer, 43 Peachtree St.
Morris, Joseph E., orchardist, 165 E. Pine St.
King, Barrington J., Candler Bldg., banker.
Thornton, Nat., dentist, College Park.
Ackler, Mrs. K. B., auditor, 260 Glennwood Av.
Lagomarisino, Chess, dispenser, 546 S. Pryor St.

Crane, Allen S., salesman, 51 Simpson St.
Bishop, Luther J., soda dispenser, 42 Summitt Av.
Hays, Wm. J., merchant, 161 Peachtree St., 384 Peachtree St.
Dorsey, Minnie, housekeeper, 210 S. Pryor St.
Small, Oscar D., orchardist, Candler Annex, 50 Richardson St.
Holland, J. Sid., auto salesman, 46 Auburn Av.
Bowen, Chas. A., insurance, 4th N. B. Bl., 269 Forrest Av.
Minor, Howard K., clothier, 39 Whitehall St., 534 Woodward Av.
Eubanks, Richard M., dental student, 500 Central Av.
Gary, T. F., clothier, 39 Whitehall St.
Roberts, J. H., insurance, 203 Empire Bldg.
Schell, Wm. L., shoeman, 39 Whitehall St.
Parks, Wm. Scott, salesman, 367 Capitol Av.
Hardwick, John W., clothier, 39 Whitehall St.
Hawes, Fred W., druggist.
Campbell, Wm. J., real estate, East Point, Empire Bldg.
Hadley, Frank M., optician, Hawkes.
Parker, R. S., lawyer, Brown, Randolph.
Harwell, Chas. O., tailor, 113 N. Pryor St.
Davies, M. M., lithographer, 65 E. Ala. St.
Picard, Jno. A., druggist, The Grand.
Shelton, Chas. B., lawyer, Candler Bldg.
Robert, Lawrence W., engineer, Candler Bldg.
Motes, Rush L., florist, 123 Peachtree St.
Hudson, D. Noon, clerk, East Point, Ga.
Matthews, Robt. G. C., electrician, East Point, Ga.
Crenshaw, Hansell, physician, Ponce de Leon Av.
Sauls, Henry C., student, Marietta, Ga.
Ross, Thos. L., lumberman, Thomasville, Ga.
Wilkinson, Chas. F., manager, Bedford Place.
Frissell, H. G., student, 316 Lee St.
Smith, A. C., student, 141 W. Baker St.
Cooper, John H., student, Commerce, Ga.
Carter, H. G., student, 5 Trinity Av.
Clegg, John F., Jr., bookkeeper, 190 E. Pine St.
Lyon, Paden, student, 102 W. Cain St.
Marston, John, mechanic, 66 S. Delta Place.
Coggins, W. P., engineer, 223 W. North Av.
Woods, Geo. M., student, 53 Orme St.
Spencer, Chas. A., stenographer, East Point, Ga.
Welchel, C. D., student, 158 Washington St."

LOUIS SCHAEFER,

recalled to the stand for further cross-examination, testified as follows:

CROSS-EXAMINATION.

BY MR. MILLER:

Q. When you used the term "hydrocarbon" in your examination heretofore, is it not true that you referred to toluol?

A. Yes, sir.

Q. Now, this hydrocarbon that is carried into the powdered coca leaf, or toluol, how is it introduced, all at once or gradually?

A. Gradually.

Q. Probably during what period of hours does that toluol undergoing process obtain?

A. Several hours.

Q. By that you mean probably how many?

A. Two to three hours.

Q. I understand you that you put this powdered coca through that process more than once?

A. It is a continuous process, percolation or toluol through the coca leaf.

Q. The toluol is introduced how?

A. It is introduced by a pipe line through a tank standing about four feet above the iron percolator.

Q. Does the toluol or the tank in which it is contained before it is introduced into the powdered coca, heated or not?

A. It is not heated.

Q. What is the temperature, approximately of the toluol when it is introduced into the powdered coca?

A. Fifteen to thirty degrees Centigrade.

Q. Then I understand that the gradual process through which the coca goes, the treatment of toluol after the coca is dried and ground up, is a gradual treatment of from two to four hours?

A. Yes, sir.

Q. Thereby the toluol goes entirely through the powdered coca?

A. Through every part of the powdered cocoa.

Q. What is your alkaline that is added to the water?

A. I revealed the nature of the same to Doctor Fuller and Doctor Emery Saturday afternoon.

Mr. Miller: Are you gentlemen willing to take their statements?

Mr. Hirsch: Yes, is was given in my presence, and we will accept the statement he made to Doctor Emery and Doctor Fuller.

BY MR. MILLER:

Q. Approximately, what is the minimum amount of water that is needed to liberate the cocaine from one of

those percolators, aided by this alkaline substance?

A. About equal parts of water to the weight of the coca leaf.

Q. Now, when the coca is alkalized, does this fall into the iron percolators?

A. Yes, sir.

Q. In cylindrical shape?

A. Of cylindrical shape.

Q. What is the process by which it is taken in the iron percolators?

A. It is carried into those percolators.

Q. How is it carried?

A. By hand.

Q. Does that mean by bucket or shovel?

A. A man carries always two buckets and goes up on top of this iron percolator and pours the powdered coca into the percolator.

Q. He takes it up by shovel or something of that nature and dumps it into the bucket?

A. Yes, sir.

Q. It then comes in contact with the air?

A. Yes, sir.

Q. And then is carried to this —

A. (Interrupting) In cylindrical shape into the percolator.

Q. Now, when this hydrocarbon, or toluol, is run by gravity from the tank that stands about four feet higher than the coca, it runs from the coca it runs into, there is no pressure brought to bear on it at all, it simply runs of its own force or by gravity?

A. Exactly.

Q. How many times does the coca undergo this extraction process before you are prepared to utilize it, or before you do utilize it in Merchandise No. 5?

A. Until all the cocaine and associated alkaloids are removed from the coca leaf.

Q. How do you determine that?

A. It was determined by a great number of analyses and is regularly controlled in the laboratory.

Q. I will ask you if you are prepared to state how many times that is, if you have the number of times it goes through the process, or whether it depends entirely on the quantity or quality of the coca you are using.

A. It depends upon the volume of the hydrocarbon used for the extractive process.

Q. Then, if I understand you correctly, after the hydrocarbon has been once put through, you continue to put the hydrocarbon or toluol through again?

A. It is a continuous process.

Q. Does the hydrocarbon that is run through it once come back and run through it again?

A. Not in that way. I wish to explain. The hydrocarbon takes the cocaine and associated alkaloids out of the coca leaf. The oily solution is run into a copper cylinder and this copper cylinder contains a solution of sulphuric acid, that is a certain volume of diluted sulphuric acid. In this copper cylinder, the oil is shaken with this diluted sulphuric acid. The sulphuric acid takes all of the alkaloids out, also the hydrocarbon. After that e hydrocarbon is permitted to settle in the copper cylinder the sulphuric acid solution collects in the bottom of the copper cylinder containing also alkaloids, the toluol, or hydrocarbon, on top of the sulphuric acid solution is then entirely free from the alkaloids and can be used over again in the same extractive process.

Q. Then it is a fact that after the toluol is run through first that is undergoes this sulphuric acid treatment, and then it is brought back into the tank and filtered through again.

A. Exactly.

Q. Now, when you speak of the oil solution, you mean toluol, of course?

A. Exactly.

Q. When you speak of taking out the cocaine and associated alkaloids, what are the associated alkaloids?

A. There is besides the cocaine a number of other ecgonin derivatives, chiefly isatsopylecgonin and cynamilecgonin and a few others which have not been so far properly identified.

Q. Then you are not prepared to say just what is taken out except that you know that cocaine is taken out?

A. Cocaine and also the ecogonin derivatives, of which I mentioned the two principal ones.

Q. And some others you are not prepared to state as to what they are?

A. Yes, sir.

Q. Is the percolator heated or not?

A. No, sir.

Q. When you speak of diluted alcohol being filled into this tank, you mean California wine?

A. Excuse me, Mr. Miller. Dilute alcohol is used only in part two of the process to make Merchandise No. 5. In the first part, the decocainized process of the coca leaf, no dilute alcohol is used.

Q. That does not answer my question: is it a fact that you use California wine in this connection?

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A. Not in the process of extracting the alkaloids from the coca leaf. I use California wine in making Merchandise No. 5 from the decocainized coca leaf and cola nut.

Q. Then you do use California wine in preparing merchandise No. 5?

A. I use California wine and alcohol.

Q. California wine contains a certain amount of tannin, does it not, Doctor?

A. I do not know that.

Q. You don't know whether it does or not?

A. I do not know.

Q. This dilute alcohol approximately of 25 per cent strength to which you referred, now what is the remainder of it, that is, the other eighty per cent?

A. Water, perhaps a small quantity of solids.

Q. You mix that alcohol with wine, as I understand it?

A. I use alcohol in the process of making Merchandise No. 5, if California wine is too high in price. It is altogether a matter of price of the wine or of the alcohol.

Q. Is it not a fact that wine contains entirely a difdilute alcohol and wine?

A. Not so far as the content of alcohol is concerned. I make from the alcohol a dilute alcohol of the same alcoholic strength as the California wine is.

Q. Yes, but is it not a fact that one of them contains tannin and the other does not?

A. I don't know whether the California wine contains tannin or not.

Q. Is it not a factt hat wine contains entirely a different flavor or rather has a different flavor from that of dilute alcohol?

A. Every alcohol has a different flavor. It depends upon the source from which the alcohol is distilled.

Q. Do you or not agree that dilute alcohol has a different flavor or taste from that of California wine?

A. I am convinced it has, but every alcohol differs in its flavor, according to the source from which the alcohol is distilled. An alcohol distilled from wine has a different flavor from one prepared from rye or corn.

Q. What character of alcohol do you use, when you do use alcohol in making this mixture, that is, from what source is it distilled or procured?

A. This is a commercial 95 per cent alcohol.

Q. Is it obtained from rye or what?

A. I did not investigate from what source it comes. The material thing for me is to have the alcohol.

Q. Then, if I understand you, the different alcohols have different flavors or tastes; is that right?

A. Slightly different. The tastes of the different alcohols will slightly differ, no doubt.

Q. You use these commercial alcohols of 95 per cent strength indiscriminately, if I understand you?

A. It is all a question, as I stated before, of the price of California wine.

Q. Then, if you go out to buy alcohol to use in making this Merchandise No. 5, it depends entirely upon the price as to which kind of alcohol you get?

A. Which is cheaper, in the manufacture of Merchandise No. 5.

Q. Now what becomes of the residue of this coca after it is decocainized by reason of the toluol and after it is brought into contact with the wine and the dilute alcohol, as the case may be—what becomes of the powder itself?

A. The powder, after the alcohol extraction, is destroyed. It is burned up in my boilers.

Q. That is, the very great proportion of the substance itself is burned up?

A. Exactly.

Q. Is it or is it not true that in the process or treatment of taking out the alcohol and alkaloidal substance, you include in that what might be termed the resins and sap of the coca, or do you know how that is?

A. There is, of course, a certain accumulation of chlorophyll and wax in the toluol. The toluol will lose its extractive power if it would be used over and over again without being distilled from time to time.

Q. Now, to distill it again, you heat it up?

A. It is a simple process. From time to time, the toluol used in the extraction process is pumped into a still and in this still, the toluol is distilled over, the contents of pure toluol is freed from wax and chlorophyll which remain in the still.

Q. My question is, that in treating this powdered coca with the toluol in the manner in which you do treat it, alkalizing it, so to speak, the toluol treatment, if there is or not with alkaloidal substances which you say are removed along with the principal alkaloid which is cocaine, also the resins and fats as they are termed.

A. Yes, sir; not only wax but also chlorophyll.

Q. Then they are removed in that process?

A. They are also removed in the same process.

Q. Then the toluol is freed from that and reintroduced into the powdered coca?

A. Exactly; it is freed from time to time.

Q. Have you ever attempted to isolate or determine fully all that is removed during this process of treatment?

A. No, sir.

Q. You are not prepared to say what is removed or what is left?

A. What do you mean by what is removed?

Q. I mean the whole of the substances that are removed from the mixture.

A. What mixture?

Q. The mixture of toluol and the powdered coca.

A. I don't fully understand your question.

Q. I mean this. I am not a scientific man, I know, but have you ever attempted to determine or are you prepared to say what is removed in addition to the alkaloid proper, namely the cocaine, along with the extraction process of the cocaine?

A. From the coca leaf is removed together with the cocaine, the alkaloids, some of the chlorophyll in the coca leaf and the waxy or fatty matter.

Q. Have you ever attempted to isolate any other substance except the alkaloid or cocaine?

A. No, sir.

Q. Then you are not prepared to say what, if any, proportion of tannin is removed in that process?

A. There is no tannin removed in that process.

Q. How do you know when you say you never attempted to isolate it.

A. Because toluol does not dissolve any tannin whatsoever. All tannins are insoluble in toluol, so they have to stay behind in the coca leaf.

Q. Is not tannin removed by any kind of process that removes chlorophyll?

A. No, sir.

Q. Do you base that statement not on your experimentation but purely on your knowledge as a chemist?

A. Exactly.

Q. Do you know what percentage of tannin is in coca?

A. I never made the determination.

Q. You know what percentage of tannin is in the cola nut?

A. I never made the determination.

Q. Do you know what percentage of tannin is in wine such as you would use in this mixture?

A. I never made the determination.

Q. Do you know of any process by which tannin content of the three might be disassociated, or the tannins of the three isolated after once being mixed?

A. By the usual method of determining tannic acid.

Q. I understand the three could be determined in that way, but I say, after you mix the three in one mass, can

you disassociate?

A. Certainly not.

Q. You can not?

A. No, sir.

Q. Do you know or can you give us what organic bodies or substances there are in Merchandise No. 5?

A. No, sir.

Q. You never attempted to determine that?

A. No, sir.

Q. When was your contract to supply the Coca Cola Company with Merchandise No. 5 made?

A. About eight years ago.

Q. It was made eight years ago next May; to refresh your recollection, was it not made ten years ago, and was it not made in May, 1904?

A. I could not tell you that exactly, but I would say from seven to eight years.

Q. Where was it made?

A. The contract was made out in proper form —

Q. I am not asking you for the contents, but where did you make it? Where did you gentlemen meet?

A. What gentlemen?

Q. The gentlemen with whom you negotiated the contract.

The Court: What is the materiality of that?

Mr. Miller: Must I go on record as showing that?

The Court: It appears entirely immaterial to me.

Mr. Miller: I propose to show that up to the time of this contract, cocaine had been in this mixture.

The Court: I don't see that the place where they met to make the contract had any bearing on that.

Mr. Miller: I think that will corroborate a witness that we shall place on the stand.

The Court: I don't think the question of where the contract was made has anything to do with the question of whether cocaine was in it before.

Mr. Miller: Only so far as corroborative of the witness that was present at the making of that contract. I ask it for that purpose purely and simply.

The Court: I hold it immaterial, and until it becomes necessary, will not allow it.

BY MR. MILLER:

Q. Now, state whether or not one of the clauses of that contract was that the mixture you furnished was not to contain cocaine?

A. I don't think that is a stipulation of the contract, but I cannot state postively.

Q. Was the contract in writing?

A. It is understood that Merchandise No. 5 I supply should be entirely free from cocaine.

Q. That was the contract from the beginning, was it not?

A. Exactly.

Q. And that was the understanding from the beginning?

A. Exactly.

Q. I will ask you whether that contract was negotiated in part with Judge Candler, who sits here, of counsel for The Coca Cola Company?

A. My recollection is that it was first negotiated with Mr. Asa G. Candler.

Q. Was Judge Candler present at the consumation of the contract?

A. I could not tell now. I have so many things in my mind all the time that I could not really state whether Judge Candler was present there or not.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. In the process of manufacturing Merchandise No. 5, is the toluol, which you use as an extractive body, removed from the mixture?

A. Absolutely.

Q. Now again: you say when you put that tuluol through the powdered coca leaf, it takes out a certain portion of the chlorophyll and wax?

A. Yes, sir; exactly.

Q. And then you afterwards run the same toluol back through the coca leaves again?

A. Exactly.

Q. On the second and third percolations—the subsequent percolations, does the toluol take out as much chlorophyll and wax as it would the first time?

A. The toluol oil, when it comes first to the coca leaves, takes a large percentage of chlorophyll and wax out and in subsequent treatments, there is less in the coca and consequently it will take less out afterwards.

Q. But it takes out on the subsequent percolations—it still continues to take out the alkaloids?

A. You mean the chlorophyll and wax?

Q. It still continues to take the alkaloids out?

A. Oh, yes, the alkaloids.

Mr. Miller: I object to that as leading.

The Court: The objection is sustained and the answer excluded.

BY MR. SIZER:

Q. After you have run the toluol through the powdered

coca leaf the first time, do you then take the same toluol and run it through another time?

A. Yes, sir; it is a continuous process; it is used over and over again.

Q. When you take it through the first time, it takes out a certain percentage of the chlorophyll and wax?

A. Yes, sir.

Q. When you take it and run it through another time, does it it take out the same proportion of chlorophyll?

A. It takes out less because the great part of the chlorophyll and wax has been removed during the first process by the toluol.

Q. Do you run that same toluol through the same batch of leaves, or do you run it through another batch?

A. This is a matter of convenience. In fact, there are several percolators connected in, so to say, a chain of extractors. I have described the process only to make my description simple—I have described how it runs through one percolator.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. You steam the coca after the toluol has gone through it?

A. Yes, sir.

Q. What heat is that steaming at?

A. It will come to one hundred degrees Centigrade.

Q. That is to carry away, certainly, the volatile substances?

A. It carries away the hydrocarbons from the extraction.

Q. And it would carry any other volatile substances that would be discharged at that temperature?

A. That would be carried away at the same time.

Q. You have never determined exactly what is carried away chemically?

A. I never did.

Q. Never tried to determine precisely what was carried away or what was left?

A. No, sir.

Q. Now, this mixture you make up of Merchandise No. 5 consists of how many gallons to the one percolator or measure of that coca leaf.

A. It consists of 450 gallons of 20 per cent alcohol to one percolator.

Q. 450 of the alcohol?

A. Of the dilute alcohol.

Q. And how much of the cola is added to the mixture?

A. To this volume of diluted alcohol, sixty-two and a half pounds.

Q. Of what?

A. Powdered cola nut.

Q. To that is added what?

A. To that is added 190 pounds of decocainized coca.

Q. Didn't you state that 900 gallons of this mixture was taken as a certain quantity, the other day, or a certain amount of mixture made 900 gallons?

A. Yes. You first asked me how much I used as a result of one percolator. I put in one percolator 190 pounds of coca leaf which is exactly one-half the quantity I gave the other day, so that in doubling all the figures I have given, you will find that you get the same proportion, that is 900 gallons of diluted alcohol, 380 pounds of powdered coca and 125 pounds of powdered cola nut.

Q. How much does that make of the finished product?

A. It will make 900 gallons.

Q. Now, this 20 per cent which you speak of, what does that consist of?

A. As I stated before, 20 per cent alcohol, and the rest is water and a small quantity of solids, if California wine is used.

BY MR. SIZER:

Q. I want to get a little more definitely at this extractive process. You say you run the toluol through a batch of coca leaves and take out the alkaloids?

A. Yes, sir.

Q. That takes out some of the alkaloids and also extracts some chlorophyll and wax?

A. Exactly.

Q. Then you go and subject that to a process that takes away the alkaloid that may be in it?

A. Yes, sir, exactly.

Q. Does that process take out the chlorophyll and wax in the toluol?

A. No, sir.

Q. That leaves it in the toluol?

A. Yes, sir.

Q. Then you use that toluol again through a fresh batch of leaves?

A. Yes, sir.

Q. Now, in consequence of the fact that the toluol has on the first process absorbed a lot of chlorophyll and wax, will it take as much chlorophyll and wax on the second?

A. No, sir; its power to dissolve wax and chlorophyll is slightly reduced.

BY MR. MILLER:

Q. On what do you base that statement, just tell us.

A. That is by long experience.

Q. You say you have never made any analysis or test, what do you base it on?

A. I did not say that I had made no analyses or tests. On the contrary, I made a great many. That is, I have them made in my works daily as that is the most essential thing I have to do, to make proper investigation of my process.

Q. But if I understand you, you have never examined on that point to ascertain?

A. To reply to your question, I wish to mention that wax and chlorophyll are of no practical importance whatsoever in the extraction of coca leaf or in the preparation of Merchandise No. 5. Cholorphyll is insoluble in water. It would not be taken out from coca leaf if the coca leaf would be treated with water or dilute alcohol. It would stay in the coca leaf so it is a substance which does not come practically into consideration whatever in the process we are referring to.

Q. Would this dilute alcohol you speak of have any effect on the chlorophyll when brought into contact with it?

A. It will not dissolve chlorophyll.

Q. Will it have any effect on it?

A. I don't think so, nor would it have any effect on the waxy matter.

(Witness excused.)

DR. JOHN WILLIAM MALLET,
recalled as a witness herein, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Have you had occasion to examine Muccioli, and if so, state what it is?

A. It is a book written by the Italian writer Muccioli, a modern toxicology.

Q. You heard Doctor Morgan's testimony?

A. Yes, sir.

Q. Doctor Morgan stated in his testimony that Muccioli gave the lethal dose for caffeine. Does Muccioli give the lethal dose for caffeine?

A. No, sir; his statement refers to the toxic dose.

Mr. Miller: Are you offering Doctor Mallet as a toxicologist?

Mr. Hirsch: No, sir; to translate this work.

BY MR. HIRSCH:

Q. It is the toxic dose he gives.

A. Yes, sir.

Q. What words do you find in the work to distinguish the toxic dose and the lethal dose?

Mr. Miller: I submit we should have the text read.

The Court: He can read from it and then may hand the work to the counsel.

A. In many places in the book the two terms are used so as to show with what dose the meaning is there employed.

Mr. Miller: I object to that because he is not qualified as a toxicologist and therefore is not prepared to speak on that subject. Counsel has definitely and distinctly said that he is not offering him as a toxicologist.

The Court: He is offering him for the purpose of making a translation.

Mr. Miller: But he offers his conclusion as to certain passages in the book.

The Court: I understand that he is reading the passage.

A. In reference to the poison aconitine the statement is that the toxic dose is from one milligram up and the lethal dose, that is, the fatal dose, is four milligrams.

BY MR. HIRSCH:

Q. What are the two words there used?

A. "Tossica."

The Court: That means "toxic?"

The Witness: That is the dose which will produce symptoms of poisoning.

The Court: And the other?

The Witness: "Le tale" or the fatal dose.

The Court: Now, when it comes to caffeine, what is the word?

The Witness: "Tossica" only, no other.

The Witness: There are numerous other places where the two words are used side by side.

BY MR. HIRSCH:

Q. Do you understand the Italian language?

A. Sufficient for scientific purposes, but I am not a finished literary Italian scholar by any means.

Q. Now I want to find out about Merchandise No. 5, the analysis you have made as to the substances in No. 5—whether you determined the amount of solid matter and how.

A. I did determine the amount of solid matter by evaporating off the alcohol and water and weighing the residue.

Mr. Miller: What?

The Witness: Evaporating off the alcohol and weighing the residue.

BY MR. HIRSCH:

Q. Did you determine from the solid matter what per cent was from the coca leaves and what per cent was from the cola nuts?

A. You didn't ask me the amount but I should say that there was a little over five ounces to the gallon of solid matter content. It is impossible for me to state the proportion of that which came from the coca leaves or the cola nuts. There are several minor factors which have to be examined which I do not know, but I should approximate it by stating that if these minor factors be neglected, as, for instance, the small amount of soda that passes from the removal of the cocaine into the solution, into the alcohol, if they be neglected, and if you subtract the one per cent of cocaine and alkaloids extracted from the coca leaf, the per cent of the solid matter from the coca leaf and kola nut together would be divided between the amount dissolved out in the formation of the solution, Merchandise No. 5 and woody fibre and other insoluble matters that are left and neglecting these minor factors the proportion would be 55 per cent of the solid matter dissolved out and 45 per cent of insoluble matter left in the residue of the coca leaf and kola nut that is thrown away. Making a liberal allowance for the other solid matter held in the solution, I should say from 30 to 35 per cent of joint coca leaf and kola nut must be present in Merchandise No. 5.

Q. I ask you if it is possible in the flavoring extract used in soda fountains to determine quantitatively the amount of flavor you use.

A. As soda water is used generally?

Q. Yes.

A. In a majority of cases it is not. It can be ascertained by a test, simply that they are present, but for the most part they are substances of an indefinite character and of such complex nature that the quantity could not be stated. The quantity might be very small.

Q. Now, the solid matter that you testified about, the five ounces of solid matter, is that held in solution in Merchandise No. 5?

A. Certainly.

Q. Do you know whether or not the coffee bean contains any cane sugar?

A. I do not know of my own knowledge, but it is so recorded.

Q. In roasting this coffee, what becomes of the cane sugar?

A. It is converted for the most part into caramel.

CROSS-EXAMINATION.

BY MR. MILLER:

Q. What portion of the coffee bean is caffeine?

A. It varies. It is commonly taken as something like one and a half per cent.

Q. What reaction takes place with the tannin of wine when treated with gelatine?

A. I could not answer that. There are different wines and they vary, and I cannot say what percentage one would give.

Q. Have you ever tested California wine?

A. I do not think I did test California wine in making Merchandise No. 5.

Q. Then you are not prepared to say what would be the result of the test with gelatine upon the tannin as contained in California wine?

A. No, sir. In a majority of the wines, I believe it would give a precipitate with gelatine, but I would not say that as to all wines or as to this particular California wine.

Q. What reaction, if any, takes place with the tannin of California wine when treated with cinchonine?

A. I will have to give the same answer.

Q. That you never tried it and do not know?

A. Precisely.

Q. What reaction takes place with the tannin of cola when treated with gelatine?

A. I think I have a note of that, but I am not sure, and I do not think I have the note with me—no, this refers to the tannin from the coca leaves and does not contain any reference to the kola.

Q. You need not state as to that, then.

A. I cannot now, but I am not sure whether I could ultimately.

Q. Did you ever make any test or are you prepared to state as to what reaction takes place when you treat the tannin of cola with cinchonine?

A. No, sir—same answer.

Q. That is, you do not know?

A. I do not know now and I am not sure whether I determined it or not.

Q. As I recall your examination in chief, you stated that you did not try to separate the various tannins, if there were more than one contained in those supposed mix-

tures that were sent to you.

A. No, sir; I examined the reactions of all the tannin-like bodies present collectively.

Q. But you did not attempt to isolate any one of the various tannins to determine what percentage of it was present?

A. No, sir; I do not believe it is possible to do so.

Q. Do you state that tannin of coca does or does not give a precipitate with gelatine and cinchonine?

A. As to the coca leaf, I do not know that it does not give a precipitate.

Q. Taken altogether, you found in Merchandies No. 5 approximately three per cent., I think, of what you term "extractive matter," tannin and other substances, including "etc."?

A. No, sir; that was not in Merchandise No. 5; that was in the analysis of Coca Cola syrup.

Q. Since the time you were called to the witness stand the other day, have you attempted to ascertain or isolate the substances that went to make up that small percentage of three or four per cent, as the case may be? I have not your figures before me, as I did the other day.

A. No, sir, I did not. As I remarked when I was on the stand before, I do not believe it is possible to do so and to express the results accurately.

Q. You have not made any tests in Chattanooga?

A. No, sir.

Q. Have you witnessed any that were made by Doctor Caspari?

A. No, sir.

Q. Are you prepared to state from your experiments as to what difference there is, if any, in the solubility of the tannins of coca, of kola, or of California wine?

A. I do not understand the question. California wine is not dissolved; it is a solvent.

Q. There is tannin in it?

A. Do you mean as to the degree of solubility?

Q. Yes.

A. No, sir; I do not know.

Q. Then you are not prepared to say that they would be dissolved out in the same proportion as they were present in the original substance if you have made no experiments?

A. No, sir; except to this extent: that I believe the amount of alcohol and water together is far more than sufficient to dissolve the tannins from the three sources you have named.

Q. But you could not tell what that proportion would

be by looking at the substance?

A. No, sir.

Q. Are you familiar with Pilocarpus leaves?

A. What?

Q. Jaborandi is the technical name.

A. No, sir.

Q. Are you familiar with the tannin of Belladonna leaves?

A. No, sir.

Q. Or with stremonium leaves?

A. No, sir.

Q. Or slippery elm leaves?

A. No, sir.

Q. Or with witch-hazel leaves?

A. No, sir.

Q. Or digitalis leaves?

A. No, sir. Never examined any of those.

Q. Or Mandrake leaves?

A. No, sir.

Q. Do you know whether or not they all contain tannins?

A. I think they all contain it. It is so reported but I have no such knowledge of my own.

Q. They are all more or less common?

A. They are common drugs.

Q. Are you prepared to state, and if so from what experiments, that any particular kind of coca as distinguished from any other kind of coca or any other variety of coca, is used in Coca Cola mixture, and if so, state it.

A. I only know from reading. I have no knowledge of my own. I know there are two principal varieties of coca on the market, commonly used.

Q. You have never made but the one test and that is with respect to the Coca Cola syrup and the infusion of coca itself, which you procured?

A. Tests for what?

Q. This test that you stated the other day you resorted to to ascertain whether or not there was certain tannin in the mixture.

A. My experiment was made with an infusion of coca leaves which I myself prepared.

Q. What variety of coca was that?

A. The specimen came from Maywood and I have understood, but that is not my knowledge, that it was Truxillo.

Q. So that of your own knowledge you have no knowledge as to whether is was Truxillo or a different variety?

A. No, sir.

Q. Of your own knowledge you do not know that it was coca at all?

A. I have seen so many specimens of coca leaves that I am quite confident it was coca.

Q. Of some kind?

A. Yes, sir.

Q. Do you know what percentage of tannin there is in coca?

A. No, sir.

Q. Do you know what the precentage of tannin is in cola?

A. No, sir.

Q. Do you know what the percentage of tannin is in California wine?

A. No, sir; except from reading as to what amount has been found in the analysis of a number of specimens. I have no knowledge of my own.

Q. What is the percentage of tannin in California wine based on your reading?

A. My knowledge is limited to this: That I know the total amount of solids as reported is from 1.4 per cent. up to something like 2.00, but how much of that is tannin I do not know.

Q. As to the coca and kola?

A. It is less than that.

Q. You do not pretend to state even from your reading what that is?

A. No, sir.

Q. You do not profess to speak either as to the amount of tannin of all kinds in Merchandise No. 5?

A. No, sir, I do not believe we have the means of determining with any degree of precision.

Q. You do not believe there is any means of determining the percentage of tannin in Coca Cola syrup?

A. Not by itself. I have not pretended to examine it by itself.

Q. How small a percentage of tannin in a given mixtrue can you determine or isolate altogether?

A. It is not a question of the proportion borne to the whole amount, but the getting of an accurate separation of the tannin at all. The tannins are exceedingly unstable. They change readily. They resemble in behavior a good many of the other alkaloid extractive matters and I do not think you can determine it accurately. A great many efforts have been made to determine the amount of tannin in tanning liquids and none of them give results of very great precision. They are all confessedly ap-

proximations and of comparative value only. They can tell that a particular kind of liquor, for instance, oak bark—they can tell whether one bark is better or worse than another, but they do not determine with any precision the percentage of tannin.

Q. How much of this Merchandise No. 5 and how much of the Coca Cola mixture, as you supposed, did you utilize in your tests, that is, what quantities?

A. I made different examinations. The examination or extraction of the tannin, for instance, from the Coca Cola syrup, my recollection is was made with four hundred cubic centimeters.

Q. Now, as to Merchandise No. 5?

A. I think two hundred cubic centimeters, but I cannot say with certainty.

Q. Did you attempt to determine the percentage of non-volatile matter in Merchandise No. 5?

A. Yes, sir; I am giving you the result,—a little over five ounces to the gallon.

Q. I want to get the percentage, and what was that percentage?

A. I did not calculate it in the form of percentages. It is easily done, if you get five ounces to the gallon you have to take the number of ounces that the gallon weighs and say that as that number is to 100, so is five to the answer. I do not remember exactly how many ounces there are to a gallon, 58,000 grains in a gallon of water—it could be easily calculated on paper.

Q. If I understand you, you are not prepared to state how much of that non-volatile matter comes from the California wine if the California wine be used?

A. Not accurately, but by reference to a determined amount of alcohol in California wines I could, but I have no knowledge to make the determination.

Q. What is the percentage of alcohol present in the California wine used in Merchandise No. 5?

A. I said I did not know.

Q. If you do not know —

A. I stated the range of percentage found by others in other samples of California wine.

Q. What is that?

A. It ranged from 1.4 to 2.00 per cent., as far as I have seen, not of tannin, you observe, but of solid non-volatile matter.

Q. Now, what color reaction takes place—what is the difference in the color of the reaction as between tannin of the coca and tannin of the cola?

A. The reactions are generally very similar, I have

not my notes as to the kola nut with me.

Q. What if any difference in appearance has the color when reaction agents are used between the tannin of the California wine and the tannin of the cola?

A. As I said, I could not determine.

The Court: He has stated several times that he has not made any determination about those tannins.

Mr. Miller: That was as to the quantities and I now ask about the color.

A. I also said I made no qualitative examination.

BY MR. MILLER:

Q. If you state you do not know either as to the quantity or the quality or the color, as to either of the three substances,—I will excuse the witness.

The Court: He did not say as to either of the three substances; he said as to California wine.

Mr. Miller: Then I ask, is there any difference in the color of the reaction of kola and coca?

The Witness: I said it was generally similar but I could not give you the precise points of difference without having my notes before me.

BY MR. MILLER:

Q. Have you those notes?

A. Not with me. I did not know I was to be examined on that point.

Q. Those notes are not in Chattanooga?

A. Oh, yes.

Q. Please refresh yourself from them —

Mr. Hirsch: I think that was fully gone into on Doctor Mallet's examination before and it is already in the record as to how he determined the difference between the tannin derived from the kola nut and the coca leaf.

The Court: My impression that was asked. You can look and if it was not you can ask.

A. I can give you all that is material, the two are very similar but there are small differences.

The Court: If the differences have not been brought out, the Doctor can take the stand again.

BY MR. MILLER:

Q. Now, are there any volatile oils that would not be removed that you know of in this percolating process of Doctor Schaefers' that he has described or detailed before you, and after that heating process that he described of the powdered coca, and if so, what are they?

A. There is no evidence that I know of based upon

the isolation of any volatile oils from the coca leaf, but the odor—the peculiar odor is usually attributed to the presence of that class of matter and that odor does undoubtedly exist in Merchandise No. 5 as it does in the infusion of coca leaves.

Q. Do you say it is possible to introduce a substance like toluol and remove the odor of that and not remove the odor of any other oil that was in contact with the powdered coca?

A. I did not testify that there are any volatile oils present. It is merely an assumption usually made. As a matter of fact there is a peculiar odor which is derived from the coca leaves.

Q. Is not there a peculiar odor derived from the toluol?

A. There would be if toluol were present.

Q. When it is introduced in the powdered coca. Now, I ask you whether the same process that would remove the odor of the toluol would not remove the odor of the volatile oils, and if you have made any experiments along that line.

A. I simply say I do not know whether there are any volatile oils present, but that oil is not removed because it is in Merchandise No. 5.

Q. Do you know whether or not the process of Doctor Schaefer would remove it?

A. I do not know whether it would remove it but I know it does not because the odor is there.

Q. That is on the assumption that you got a sample from which it was not removed?

A. Certainly. That sample of Merchandise No. 5—all samples of Merchandise No. 5 that I have seen have that odor.

Q. Are not odors usually due to the volatile oils?

A. Very frequently, but in this case and in a great many others the assumption that the volatile oils are present is based upon the fact that they have the odor. A substance must be volatile to reach the nerves of smell, but whether they are by nature essential oils can only be determined when you get enough of it to examine in another way.

Q. This is the volatile substances?

A. Yes, but whether it is volatile oil or not I do not know.

Q. Did you or not state in your examination originally that the method adopted by Doctor Fuller in his experiments and analyses was defective in any way, and if so, in what respect and on what do you base that statement?

A. As to the determination of caffeine?

Q. As to the determination of the contents of Merchandise No. 5 and Coca Cola syrup.

A. The only criticisms that I made in answer to the question was in regards to the determination of the amount of caffeine. Is that what you refer to?

Q. That is the only criticism that you have to make of his method of analysis?

A. That is the only one.

Q. Now, what is your criticism on that?

A. It was that the animal charcoal which is was specified had been used in purifying the caffeine which was weighed—that that necessarily vitiated the determination made by such process in view of the fact that some of the caffeine was taken up by the animal charcoal along with the coloring matter.

Q. I ask you if you are acquainted with commercial Organic Analysis by Allen.

A. Yes, sir.

Q. T[illegible] is a reputable authority?

A. Yes, sir.

Q. And that is one of the authorities you cited the other day in support of your analysis?

A. Yes, sir.

Q. I read from page 485 of that treatise: (Reading)

> "Charcoal cannot be employed for decolorizing caffeine solutions, without a considerable absorption of alkaloid, which is retained with extreme persistency. If the caffeine isolated be coloured, it may be dissolved in a little hot water, and the filtered solution evaporated to dryness; but there is little difficulty in isolating the alkaloid in a snow-white condition."

Do you agree with that?

A. Entirely, but that does not bear upon the point on which I was formerly examined. I endeavored to make my meaning clear as to the distinction between the sum of the caffeine in a perfectly white condition and the total amount. The use of animal charcoal is proper in the former test and improper in the last.

Q. When caffeine is dissolved in chloroform, will charcoal remove it or not.

A. I cannot tell you from my own experience, but I doubt whether if it was used in the chloroform solution that the coloring matter would be removed, but I do not know.

Q. That you cannot say?

A. No, sir; I was referring to water.

RE-DIRECT EXAMINATION,
BY MR. SIZER,

Q. Does that refer to quantitative tests?

A. What method?

Q. About the animal charcoal.

A. Part quantitative and the other qualitative. If that volume of Allen were given to me I could find out exactly for you. (Book handed to the witness:) Here it is: (Reading)

> "Although the isolation of caffeine in a state of absolute purity may be easily effected, the accurate determination of the proportion of alkaloid present, especially in tea, is attended with great difficulty, and hence most of the published results represent the proportion of caffeine isolated, rather than the amount existing in the substance examined."

Mr. Miller: What book are you reading from? What edition?

The Witness: Allen, the second edition, and that is on page 484.

On the opposite page, Allen goes on:—(Reading)

> "The determination of the alkaloid in tea has recently been the subject of a very large number of experiments in the author's laboratory by C. M. Caines, G. S. A. Caines, and G. E. Scott Smith. The following facts have been fully established" —

He then goes on:

> "Charcoal cannot be employed for decolorizing caffeine solutions, without a considerable absorption of alkaloid, which is retained with extreme persistency. If the caffeine isolated be coloured, it may be dissolved in a little hot water, and the filtered solution evaporated to dryness; but there is little difficulty in isolating the alkaloid in a snow-white condition."

BY MR. SIZER,

Q. Since Mr. Miller has suggested it, have you any other criticism to make of the method used by Doctor Fuller and Doctor Emery?

A. No, sir; I was asked whether the use of animal charcoal rendered the comparison of the different results obtained, unreliable. I does not give them the extent to which the alkaloid is absorbed by the animal charcoal and that is variable. Animal charcoal varies greatly in character and the absorbent character of animal charcoal varies greatly in character and also varies with the temperature; the amount absorbed would vary in any experiment,

and the results of such an examination could not be depended on as accurate results.

Q. Would the alcohol extract all the caffeine from a concentrated substance like Coca Cola syrup?

A. The alcohol would extract it but it would not be desirable to use it on account of the sticky condition in which it would leave the sugar. It would be difficult practically to obtain all the caffeine in solution separated from the sugar.

Q. Would that be possible?

A. I do not say it is not possible, but it would be difficult.

Mr. Miller: Have you ever tried that?

The Witness: I have tried the effects of alcohol on sugar.

Mr. Miller: But not on Coca Cola syrup?

The Witness: No, sir; but as far as refers to sugar, I have done that.

Mr. Miller: You have never tried it for the purpose of removing caffeine from the sugary solution, have you?

The Witness: No, sir; I would not do it for the reason I have mentioned.

Whereupon the court, at two o'clock P. M., adjourned until Thursday, March 30, 1911, at 9 A. M.

CHATTANOOGA, TENNESSEE

THURSDAY, MARCH 30, 1911

NINE O'CLOCK, A. M.

Court met pursuant to adjournment.

Appearances: Same as heretofore.

CLAIMANT'S EVIDENCE CONTINUED.

Mr. Miller: There was one statement, if your Honor please, of Dr. Wesener the other day. If he is here I would like to have him recalled because I have had Gademer translated in the meantime.

The Court: All right.

DR. J. A. WESENER,

recalled as a witness herein testiled as follows:

RECROSS-EXAMINATION, CONTINUED, BY MR. MILLER:

Q. Doctor, when you stated that persons had been known to take thirty to forty-five grains of caffeine, you were asked for a citation and said it came from Gademer. I will ask you if that was the text-book of Chemical Toxicology by Dr. Gademer that you referred to?

A. Yes, sir; I believe it was.

Q. And if the literal translation is not this: "As symptoms of caffeine poisoning, the following are to be named: burning in the throat and stomach, vomiting, sense of pressure in the head, buzzing in the ears, restlessness, palpatation of the heart, shortness of breath,trembling of limbs, stiffness of the muscles, desire to urinate. This is caused by paralysis of the heart. Symptoms of poisoning may appear after two grams of caffeine, which means three grains."

A. You say two grams?

Q. Yes, I said two grams,—I meant two-tenths of a gram,—"But daily doses of two and a half to three grams, that is thirty to forty-five grains have frequently been borne without damage. Cardiac patients are especially sensitive"—Was that the passage to which you referred and do you recall that as being a correct translation?

A. The latter part I referred to and the first part may be correct but I would like to read it to verify it.

Q. Well, please take it and if there is any error in the translation, state it, and let it go into the record in that connection as an explanation of your statement

The Court: What does this contradict that Dr. Wesener has stated?

Mr. Miller: I did not mean to say that it was a contradiction?

The Court: How is it admissible then under my ruling as to introducing authors? I do not see that it is competent.

Mr. Miller: Well, a part of the text—a part of the statement, your Honor, in which he said that thirty to forty grains might be taken is this—

The Court (Interrupting): Does that contradict this witness?

Mr. Miller: I think it does. He was asked how much a person could take or how much would produce the effects, and he said patients had been known to take thirty to forty-five grains, and I asked for a citation and he gave Gademer as a part of the sentence—he gave the minimum and the maximum dose.

The Court: He was not asked about that.

Mr. Miller: I want to ask it now.

The Court: I will not allow the question to be asked merely for the purpose of introducing the textbook.

Mr. Miller: I do not wish to ask it for the purpose of contradiction but merely in explanation.

The Court: It is a matter in chief to prove what the maximum dose is; that is a matter in chief and you cannot prove it by the textbook—

Mr. Miller: I did not have the German text before me and I had no way of asking the Doctor in that same connection if the same author did not state as a part of the same sentence what the minimum dose was and what the maximum dose was. He gave me the maximum dose.

The Court: You ask him something about thirty-five or forty grains the other day and he made the statement and referred to this author and if this author contradicts him in any way, you can prove that a fact. This author's dissertation on caffeine is not admissible.

Mr. Miller: I simply refer to this text that symptoms of caffeine poisoning may appear after three-tenths of a gram—is contradictory of the fact that a person may take forty-five grains without harm.

The Court: I believe he said that they took thirty-five grains with harm.

Mr. Miller: No.

The Court: You just get the passage you refer to and let me have it and then I will rule on it later.

Mr. Miller: I would like to have Doctor Wesener say whether or not this is correct, and I will then pass it to your Honor.

The Court: I want to get at the original examination upon which you are now seeking to introduce this text.

Mr. Miller: I will have to send to our room for that and I will do that during the recess hour.

The Court: Then the Doctor may be excused until he is recalled.

Mr. Miller: That letter to which his attention was called, but which I see from the reading of the testimony I did not put in evidence, I desire to offer in evidence as Exhibit No. 1 and I will pass it to the stenographer.

Mr. Sizer: You asked him about the letter.

Mr. Miller: He said that was a copy of the letter.

The Witness: As well as I could remember.

Mr. Miller: That is the published letter in the advertisement?

The Witness: I said I believed that was a correct copy of it.

Mr. Miller: You can doubtless verify that in the meantime. I have not the copy of the letter with me.

BY MR. MILLER:

Q. Did you state the other day that that was a copy of a letter which was published without your authority by the Coca Cola company?

A. The letter which I sent to them at that time was printed without my authority. I do not know whether

that is an exact copy of that letter. It appears to me.

Mr. Miller: I will give the Coca Cola Company notice now to produce that letter in open court that was written to it, and if we have formal evidence about it,I serve notice on them.

Mr. Sizer: Then we will get it if we can find it. The point I am getting at, Mr. Miller has a copy of a certain purported letter that it is claimed Dr. Wesener wrote, and he was questioning him at the time about a typewritten copy and not that.

The Court: You are mistaken about that. He asked him about this particular letter and had that in his hand when he asked the question.

Mr. Miller: I have also what purports to be a typewritten copy and I am perfectly willing to use it instead of that.

Mr. Sizer: I do not know what else there may be in that letter there.

Mr. Miller: Nothing except the Coca Cola advertisement, is all. I can give you a typewritten copy of it.

Mr. Sizer: Then if there is nothing else in it, I will have no objection.

The Court: If the objection is withdrawn it may go in.

Mr. Sizer: I assume that is a correct copy as far as we know. We will look it over and unless we desire to produce the original that may be taken as filed.

The Court: It may be filed subject to any exception that counsel desire to make to it hereafter.

(Which said letter so offered and received in evidence, was marked Exhibit 1 Wesener, and, omitting advertisement on same sheet, is as follows:)

"THE COLUMBUS LABORATORIES' ANALYSIS OF COCA-COLA. Chicago, April 15, 1907.

We beg leave to report to you the result of analysis of Coca-Cola. We purchased in the open market an original package of one gallon of Coca-Cola. The contents of this jug were submitted to a very careful and exhaustive analysis for cocaine and alcohol, and we failed to find any trace of either. Caffein was found to the extent of .2 of one per cent. The amount of caffein contained in one ounce of Coca-Cola used for making one glass of the prepared drink is less than one-half that is contained in a cup of coffee of the average strength.

Very respectfully submitted,
THE COLUMBUS LABORATORIES,
Per J. A. Wesener."

(Witness excused.)

Mr. Miller: Here is this Dr. Roberts letter that was put in evidence yesterday:

(Exhibit to testimony of Dr. S. R. Roberts.)

"Submitted to your good judgment without comment.

Atlanta, Ga., September 9, 1907.

Judge John S. Candler,

City.

Dear Sir:—On examination of the active principles of tea, coffee and Coca Cola, we find that tea contains from 2.33 to 3.24 per cent caffeine and from 16.40 to 27.14 per cent of tannic acid.

Coffee contains from .62 of 1 per cent to 1.11 per cent of caffeine and also tannic acid in smaller quantities than found in tea. The average cup of coffee contains about 2 grains of caffeine, though in "drip" coffee, which is more and more coming into use, a cup is likely to contain as much as 3 to 3½ grains of caffeine.

Therefore, a person drinking a cup of coffee is likely to get from 2 to 3 grains of caffeine, the more cupfuls one drinks, the more caffeine in proportion.

Coca Cola contains 1.22 grains of caffeine per ounce of the syrup which means per glass of Coca Cola as 1 ounce of syrup is used in making a glass of the beverage. The pure Coca Cola syrup, therefore, contains .25 of 1 per cent caffeine, and since there are six ounces of water added to this one ounce of pure Coca Cola syrup, to make the seven ounces of fluid found in a glass of Coca Cola, we find that a single glass of Coca Cola contains, in round numbers, about .04 of 1 per cent caffeine.

Comparing this amount of caffeine with the amount found in a cup of coffee or tea, we find that in a glass of Coca Cola there is just about one-third the amount of caffeine to be found in the other two beverages menticned.

But we cannot stop there with a mere comparison of the amount of caffeine found in Coca Cola, and that found in coffee and tea. We must go further, and take into consideration the custom of tea and coffee drinkers. For instance, a person rarely drinks more than one glass of Coca Cola at a time. This may be repeated during the day, but the rule is, that one glass of Coca Cola at a time is sufficient. The case is very different with tea and coffee drinkers. It is a frequent expression from the most nervous and delicate women that they drink from two to three cups of coffee at a meal, and in warm weather, tea drinkers usually drink from two to three glasses of tea at a meal.

As a rule, the caffeine in these beverages does not interfere with digestion, no matter in what quantities they

are consumed. Coca-Cola, therefore, does not interfere with digestion nor cause indigestion. Tea and coffee on the other hand, with their large proportion of tannic acid, do interfere with digestion, when drunk in either large or small quantities, during long periods of time. Tannic acid is an astringent, precipitating the pepsin in the gastric juice, interferes with peristalsis, and, in the long run, will cause constipation and its attendant evils.

Caffeine in medical doses, which range from 2 to 5 grains or in minute doses, as, for instance, a glass of Coca Cola, has no effect whatever upon the digestive system or ailmentary canal.

Caffeine acts upon the human mechanism in three ways: First, it stimulates the heart; increases the force of the heart beat, and raises the blood pressure.

Second. It stimulates the kidneys; increases their secreting power, and, therefore, may be considered, in medicinal doses, as a very mild diuretic.

Third. Caffeine is a cerebro-spinal stimulant, and physiologically, in the human mechanism, temporarily increases the ability to do work, chiefly on account of its action on the central nervous system. This influence is a temporary one, and does not noticeably increase the power to do work, except when the body has a plentiful supply of nutritious food.

Caffeine, in the small amount found in Coca Cola, could not be considered a strong stimulant, but merely a mild one, and by its slightly stimulating effect upon the nervous system, it refreshes the mind, causes more animation, and thus, physiologically, tends to relieve, temporarily, fatigue and mental exhaustion.

To sum up, coffee and tea, on account of the large amount of tannic acid and volatile oils which they contain, tend, in the long run, to interfere with digestion, and the large amount of caffeine which they contain renders the more harmful if drunk to excess: On the other hand, Coca Cola does not contain any substance which can, in any way, interfere with the digestive system; while the small amount of caffeine contained slightly stimulates the heart and nervous system and refreshes the whole mechanism.

Yours very truly,

(Signed) STEWART R. ROBERTS, M. D., M. Se., Ex-Prof. Biology in Emory College; Prof. Physiology in Atltana School of Medicine."

Mr. Sizer: We will call Dr. Hare around to the stand.

DR. HOBART AMORY HARE,

the next witness called on behalf of the Claimant and In-

tervenor, The Coca Cola Company, of lawful age, being duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. SIZER:

Q. Please state your full name.

A. Hobart Amory Hare.

Q. Where do you life and what is your profession?

A. I live in Philadelphia and am a physician. My profession is that of a physician.

Q. You live at Philadelphia, Pennsylvania?

A. Yes, sir.

Q. Doctor, please state your medical training and where you graduated.

A. I graduated at the Medical Department of the University of Pennsylvania in 1884, taking the degree of M. D.; also taking from the University of Pennsylvania the degree of Bachelor of Science. In 1886 I studied under Karl Ludwig in the Physiological University of Leipsic, and under Hugo Kronicker of the University of Berne in Switzerland.

In 1886 I studied in the Brunton Hospital for Diseases of the Chest in London. In the great Ormande Hospital for the Disease of Children, and in the National Hospital for the Paralyzed and Epileptic in London.

Q. Have you had any connection with any medical institutions of learning?

A. Immediately after graduation from the University of Pennsylvania, I was appointed an instructor in Clinical Diagnosis and later lecturer on Physiology in the Biological Department of the University of Pennsylvania.

In 1886 I was made demonstrator of experimental therapeutics in the same institution. In 1890, after having been in charge of the Department of Children's Diseases in the University Hospital for several years, I was made Clinical Professor of Diseases of Children in the University of Pennsylvania, and in 1891 I was made Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia which is the largest medical school in the United States, and I still hold that position.

Q. Have you held any official positions of any kind, and if so, what?

A. I have been physician to St. Agnes' Hospital, Philadelphia, and for the last twenty years have been physician to the Jefferson College Hospital, Philadelphia. I am a member of the American Reserve Corps of the United States Army. I have been president of the Philadelphia Neurological Society—that is, the society for the study

of nervous diseases.

I have been chairman of the section on medicine of the American Medical Association; that was in 1893, and I am now one of the vice-presidents of the Philadelphia Pathological Society for the study of diseases and diseased organs.

Q. Of what societies are you a member?

A. I am one of the original members of the American Physiological Society; I am a member of the Association of American Physicians which is limited to 125 members. I am a corresponding member of the Society of Hygiene in Madrid, Spain; I am a member of the various local medical societies in Philadelphia; I am one of the council of the College of Physicians of Philadelphia, which is a honorary body, not a teaching body.

Q. Have you written any medical treaties or essays along these lines?

A. A number.

Q. State some of them.

A. In 1890, I published a text book on Threapeutics, now in its 13th edition; in 1896, I published a text book on Diagnosis, now in its 6th edition; in 1904, I published a book on the Practice of Medicine which is now in its 2nd edition; in 1890, I edited an Encyclopedia on Therapeutics, three volumes, and have done that three times since then. They have not been new editions because the authors on the subject have been different. The last encyclopedia, the 2nd volume, was published in January of this year.

Q. Now, in addition to those books, have you written or prepared any essays along special lines of research?

A. In 1884, I wrote an essay on the Influence of Quinine on the Blood, and I received the Faculty Prize of the University of Pennsylvania for it; in 1885, I wrote one upon Physiological and Pathelogical Effects of Tobacco, which received the prize at the Rhode Island Medical Society; in 1886, the same Society awarded me the prize on an essay on New and Later Forms of Disease Due to Advances in Civilization; in 1888, I received the Father Gideon Gold Medal Prize from the Medical Society of London for an essay upon Diseases of the Chest; in 1889 I received the six thousand franc Prize for the Royal Society of Belgium for an essay on Epilepsy; in 1889, I received the Warren Triennial Prize of the Massachusetts General Hospital for an essay; also the Cartwright Prize of the College of Physicians and Surgeons of New York; and in 1890 the Boylson Prize from Harvard for an essay on Anti-pyrotic Drugs, that is, those employed to combat

fevers.

Q. Are any of those books used as text books?

A. Yes, sir; the book on Therapeutics is used as a text book in 88 schools in this country.

Q. Have you written any essay or anything especially dealing with drugs and the effect of drugs?

A. My book on Therapeutics essentially deals with drugs and the effects of them, and I am also one of the authors of the National Standard Dispensatory, Doctor Caspari being the senior and Doctor Rusby the other two members, and at various times I have made communications to various medical journals dealing almost all of them with the action of drugs on animals and the action of drugs on human beings.

Q. Have you made any study of Toxicology?

A. In the sense of the influence of poisons upon living persons, yes, but in the sense of a toxicologist expert, toxicological chemistry, no. I testified as an expert in a great many poison cases, notably the Patrick case in New York.

The Court: That is immaterial.

Q. Have you had any thing to do with the compilation of the United States Pharmacopœia?

A. I was the Secretary of the convention for the revision of the Pharmacopœia in 1890, and I was a member of the committee of revision of the Pharmacopœia which is now in force under the law, and I was Chairman of the committee on dosage of the present Pharmacopœia.

Q. Were you asked to testify in this case on behalf of the Government?

A. I was.

Mr. Miller: I object to that.

Mr. Sizer: That is simply matter going to show the estimation in which he is held by the Government.

The Court: I think it is competent.

BY MR. SIZER:

Q. For what reason did you decline to accept the appointment?

Mr. Miller: I object to that.

The Court: I hold that is immaterial.

BY MR. SIZER:

Q. Was your declination to accept the employment based to any extent on any question of compensation?

Mr. Miller: I object to that.

The Court: I hold that it is immaterial.

BY MR. SIZER:

Q. What is caffeine?

A. It is an alkaloid derived from coffee and also under the United States Pharmacopœia from tea. The drug, caffeine, found in the drug stores, is caffeine derived from tea and not from coffee, because it is too expensive to get from coffee.

Q. What are the effects of caffeine?

A. It acts as a stimulant on the body.

Q. What degree of stimulation is produced?

A. Mild stimulation.

Q. Does it produce a degree of stimulation taken in the form of a beverage that is injurious to the general health of a person taking it?

A. Not in the slightest degree.

Q. You say you are in part responsible for the dose as given in the United States Pharmacopœia; what is the dose of caffeine prescribed there?

A. One grain, but that is not the dose I voted for, although I was Chairman of the Committee; I believed that the dose should be larger, and in my own book, I give from two to four grains, but as the matter went through, the Committee they concluded that one grain was the best average dose. The doses of the Pharmacopœia are supposed to be the average doses.

Q. What bearing would the dose fixed in the Pharmacopœia have on a man—how much caffeine could be taken in a day in the nature of beverages?

A. Very little effect. Caffeine, as a drug, is very fleeting in its influence; therefore it is one, which when used in medicine, should be given comparatively frequently, every three or four hours, and therefore, if given every three or four hours, the patient would get from six to eight grains a day at the Pharmacopœia dose of one grain.

Q. What is the Pharmacopœia dose as prescribed in other countries?

A. It ranges from five to twenty grains. In France, Germany and Russia, I think it is that. I am not sure on Germany, but I think it is so in that country.

Q. Do you use caffeine-containing beverages or caffeine itself?

A. I have used caffeine very largely in the past. When I was a cowboy in the far West many years ago, I used it. I do not use it now because it makes me bilious. I use tea constantly and use caffeine every day.

Q. You state coffee makes you bilious?

A. The empyreumatic oil, or caffeol I think is what does it, because I find that I can take any quantity of caffeine in reason without producing those symptoms of

biliousness, and I find that if I drink coffee as a beverage or chew the coffee berries put up by Merck & Company in the form of decaffeinized coffee, which contains the empyreumatic oil, that I still suffer with the biliousness. Furthermore, I can drink tea without developing the symptoms. The tea does not contain the empyreumatic oil.

Q. Are there people who can drink one form of caffeine-containing beverages and cannot take another; for instance, can people drink tea and not coffee and vice versa?

A. Yes, sir.

Q. And that is due to what?

A. In the case of those who can drink tea and cannot drink coffee, it is due to the presence of the empyreumatic oil. In the case of those who can drink coffee and cannot drink tea, it is due to the presence of the tannic acid in the tea which produces disorders of the digestion.

Q. How much caffeine do you take per day?

A. From one to four grains.

Q. Did you ever drink Coca Cola?

A. I did. Finding that taking of caffeine in the form of a tablet and allowing it to dissolve in my mouth was not an agreeable way of taking it, and hearing of Coca Cola or having Coca Cola called to my attention, I got some of it and drank it regularly immediately after breakfast for a period of six months before going into my consulting room in place of a cup of coffee, or some other stimulant, and I have occasionally taken a glass of Coca Cola since. The reason I stopped taking Coca Cola after having taken it for some time, I found the sweet character of the Coca Cola was rather tiresome.

Q. How much did you take in that six months?

A. Any where from one to four glasses a day.

Q. Did it produce any injurious effect upon your health?

A. Not the slightest degree; I gained twelve pounds while I was taking it.

Q. Do you use caffeine in your practice as a physician?

A. Very constantly.

Q. For what purpose is it used as a medicine?

A. As a stimulant to the general nervous system in cases of depression, to improve the action of the heart in persons who are over-fatigued, played out, to increase the activity of the kidneys when the urinary secretion is not as free as it should be, to relieve certain types of headaches and eye-strain. That is about all that occurs to me at the moment.

Q. Is caffeine a poison?

A. Not at all.

Q. Does it have any permanent effects?

A. Not in the slightest.

Q. How long would it take the effect of even excessive quantities of caffeine to pass away?

A. Of course, the term "excessive quantities" of caffeine is a very wide one. If you mean the effect produced by five or six times the ordinary dose, I should say four or five hours, differing in different individuals and differing too, according to what the individual was doing in the five or six hours after taking it.

Q. On what do you base the statement that caffeine is not a poison?

A. In the first place, I have administered it in very large doses without seeing that it produced any symptoms that would justify any one classing it as a poison. I have taken it myself in several times the dose ordinarily indicated as correct in English and American text books without being poisoned, and I cannot find any cases in the literature which would justify such a classification. It is true that a number of instances have been quoted in this Court where caffeine has been said to have acted as a poison, or to have produced death. In not one case that I have been able to find where death followed the use of caffeine, was there any proof whatever that caffeine caused the death, and there was abundant evidence that there were three or four other likely causes of death. In the case of poisoning which did not go to the point of death, the doses were either very, very large or they were poorly reported; and the fact that caffeine is found in certain books classed under the head of poisons or with many substances which are ordinarily known as poisons, is of no particular significance. To illustrate what I mean, if you look in the United States census, you will find that chickenpox is classed under infectious diseases with consumption and pneumonia. You will find two hundred thousand deaths from pneumonia and one or two from chickenpox, and if you investigate the cases where the death was reported from chickenpox, you will find they occurred in children so near death by reason of other diseases that anything would have sent them off, and that is the way with caffeine when it is quoted as a poison in certain books, in connection with other substances which are poisonous.

Q. Is the use of caffeine as a stimulant, followed by depression?

A. It is not.

Q. Is caffeine a habit-forming substance?

A. Never.

Q. Does it have any cumulative effect?

A. Not in the slightest degree.

Q. Did you hear the testimony of Doctor Wood the other day with respect to a certain experiment he had made with caffeine?

A. Yes, sir.

Q. Now, from the standpoint of a physician, what conclusions do you draw from those experiments?

A. The conclusion that caffeine increases the muscular ability to work without producing any secondary depression, and without in any imparing what has sometimes been called the reserve energy of the muscles. In other words, it has very much the same effect upon the efficiency of muscles as oiling machinery has upon the efficiency of the machinery. It enables them to expend their energy with less effort.

Q. Did you have any connection with the making of the experiments testified to by Dr. Hollingworth the other day?

A. I did. I planned the scope of those experiments and during their performance, investigated the results that he was obtaining and made further suggestions and improvements in the method.

Q. What conclusions do you, as a practicing physician, draw from those experiments of Doctor Hollingworth?

A. Identical conclusions to those I have just spoken of concerning Doctor Wood's experiment except that his deals with mental processes and Dr. Wood's dealt with muscular.

Q. What is the effect of caffeine on blood pressure?

A. That is a matter still open to debate. In my own book, I state that caffeine raises the blood pressure. The text of that book was prepared in the latter part of 1908, and a number of researches have been published since then and many of them before that, which contradict that view, and I think that is still cloudy. I do not think it is determined. My opinion that it is not determined is verified by the fact that in the March issue of the Edinburg Journal, Professor Gibson of Edinburg —

The Court: That is not competent and I exclude that.

Q. Does caffeine ever produce ateriosclerosis?

A. I don't think so.

Q. What do you mean by the word "tolerant" used in a medical sense in connection with the taking of various substances?

A. The ability of an individual to take a substance which is capable of producing effects. In other words, a

substance which is not absolutely powerless, with comparatively little manifestations of its influence.

Q. What do you say, Doctor, with respect to the tolerance of the human system for substances like caffeine?

A. I think the longer it is taken the more it is tolerated.

Q. And so a person accustomed to it is really able to take more without any effect than one who is not accustomed to it?

A. Yes, sir; that is the rule in regard to practically all of the alkaloidal drugs.

Q. Doctor, assuming that caffeine is present in Coca Cola syrup to the extent of about .21 of one per cent and that one ounce of syrup contains this per cent of caffeine, mixed with six or seven ounces of water, and in that form taken as a beverage, what would be the effect of the caffeine contained in this beverage upon the human system?

A. A pleasant, refreshing influence.

Q. Is that the only effect it would have?

A. It might increase somewhat the flow of urine. That would depend very largely, however, upon how much fluid a man had in his body at the time he took it, and how much exercise he was taking.

Q. Is the increase in the flow of urine following the taking of beverages injurious to the system?

A. I can't understand how it could possibly be so, and it might be very advantageous, and with the average individual, sedentary individual, it is very advantageous.

Q. What do you say with respect to the value of experiments made on animals with the use of caffeine as indicating the effects of caffeine taken in the form of beverages on the human system?

A. Experiments on animals are indicative of what possibly may occur with the same substance as given to man, but only collaterally so. And the great difficulty in the administration of the influence of a drug like caffeine upon the human being, by administering that drug to a rabbit or a guinea pig or to a frog are that none of those animals are omnivorous, that is to say, eat everything as man does. In the case of the rabbit and the guinea pig, they are vegetarians, and their processes of nutrition and digestion are limited therefore, to dealing with vegetable substances of which, of course, caffeine is one, but man's organism is built to handle meat and vegetables of all kinds, and therefore there is no animal which affords a true and accurate representation of what a drug may do unless it be the pig, which is also omnivorous.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Doctor, who was it approached you on behalf of the Government and asked you to testify?

A. Doctor Kebler.

Q. Who sits by my side?

A. Yes, sir.

Q. Well, you prepared an opinion for the Coca Cola Company in this case, especially after this litigation was brought, did you not, Doctor Hare?

A. The only reason I hesitate in answering that question is because I think I prepared several opinions.

Q. Would you recognize some of the statements in that opinion if it should be read to you?

A. Yes, sir; sure.

Q. Well, in that opinion, did you deal with coffee to start with?

A. Well —

Q. (Interrupting.) And its effects on the human system?

A. I am unable to answer that question because I don't know which opinion you refer to, but I think it likely I did.

Q. I mean in one opinion that you prepared for the Coca Cola Company you did?

A. Yes, sir.

The Court: I suggest, as I did in the case of the other side, that if you want to contradict a witness, just ask him if certain things are so, and if he says that he didn't make that statement, that would not be competent.

BY MR. MILLER:

Q. State whether or not as coffee was dealt with in that case, you were considering it from the caffeine standpoint, that is from the standpoint of the caffeine content?

A. Well, Mr. Miller, I can't answer that question without seeing it, because I repeatedly sent replies to Mr. Hirsch to questions, which he addressed to me, and I don't know which one we are talking about at the the present moment. I am perfectly free to state that I believe caffeine is a most important constituent of coffee. If that statement is there, I will make it now, if I didn't make it before.

Q. The statement I have does not purport to be the original. Of course, I would have to give counsel on the other side notice to produce the original, but I read this statement —

The Court: I hold it is incompetent unless there is

some reason in reading it.

Mr. Miller: I am trying to ascertain what is was, what was the particular constituent of the coffee.

The Court: Just hand the opinion to the witness and let him see if it is the original.

Mr. Miller: I will pass this to the witness and ask him if he wrote this opinion, a copy of which I pass to him.

The Court: Well?

Mr. Miller: He said he thought he would recognize it if extracts were read to him.

The Court: I hold it is incompetent and that it is not proper for the purpose of contradiction.

Mr. Miller: I have not tried to contradict him about this, I had not got to that point yet.

The Court: Proof of former statements is incompetent in contradiction. If it is not used to contradict the witness, it is new matter that you are cross-examining on.

The Witness: This is a series of extracts from various books and in quotation marks, and does not seem to represent what I individually say unless I could take time to read it all through to be sure.

BY MR. MILLER:

Q. State whether or not that is the opinion that you prepared in which you embodied certain extracts taken from medical authors for the benefit of the Coca Cola Company for use in this case.

Mr. Sizer: Just let him state where they got that.

Mr. Miller: Just let the witness compare it and see.

The Court: I do not see the bearing of it unless you specifically want to show that this witness has sent reports to the Coca Cola Company.

Mr. Miller: I am asking him that.

The Witness: I admit that.

BY MR. MILLER:

Q. I ask you whether or not in dealing with caffeine in that particular opinion, or in dealing with coffee, rather, in that particular opinion, a copy of which you have before you, the physicological action of the coffee, you had regard to its caffeine content?

A. Well, I had no regard—because this is a quotation. I am very free to admit that this is a quotation, but these are not my words.

Q. But does not that, Doctor, I say, so far as you have examined it, appear to you as a correct transcript of one of the opinions that you sent to the Coca Cola Com-

pany?

A. I remember taking a number of books and amonst other, the National Dispensatory of which I am one of the editors, taking quotation from them and sending to Mr. Hirsch, extracts from these books which I believed had a direct bearing favorable and unfavorable upon this whole subject. Now, whether this is an absolute transcript of what I sent him, I cannot remember.

Q. Now, turn to the back of that—just look at the back and at the introductory part and also at the closing sentence, and see if that is not in your own language, the beginning of it.

A. On the first page, it begins: "Opinion by Dr. Hobart A Hare," and the next word is a quotation. The begining of the sentence begins with quotation marks, that is quotation marks from "Pleadings in the case."

Q. Yes.

A. And the reply then follows.

Q. Now, turn to the conclusion or the summary and state if you yourself did not after going through the literature, draw certain conclusions from those previous excerpts?

A. "It is evident, therefore,"—

The Court: Don't read it, Doctor.

BY MR. MILLER:

Q. I ask you whether or not you did, in the opinion you sent to Mr. Hirsch, draw certain conclusions from the literature that you had quoted in that opinion? Do you recall how that was?

A. This is my opinion now and has been right along; I don't know whether these are my original words or not —

Q. (Interrupting.) Now, as respects coffee, didn't you say and is this not true "That" —

The Court: (Interrupting.) That is incompetent under the rule, what he has previously stated, unless the basis for contradiction of something he has said on direct examination. His former statements are entirely immaterial to this case.

Mr. Miller: It has been shown here as to the large consumption of coffee and I will ask this witness, if I am permitted to ask him on cross-examination, I will ask you as a matter of fact that the large consumption of coffee depends upon its pleasant taste when it is roasted and is due to the fact that the caffeine which it contains acts as a gentle stimulant?

A. That is strictly true.

Q. Now as respects the toxicology of caffeine. Didn't you report and isn't it true that a case of caffeine is reported by one Routh?

A. I know the man.

Q. Well, you know the case?

A. I know the case and I have the reference in my room, but I have gone over these cases that have been offered here in the Court and listening to the testimony so frequently, I will have to admit which Routh case it was.

Q. When you prepared the opinion that was to be followed—did you use this language: "The only case of poisoning by caffeine that we have met with, is one reported by Routh, see London Lancet 1883"?

A. Yes, sir, that was the case. I also think it was quoted in Martindale & Prescott's extra Pharmacopœia. I think I am wrong on that reference; I can't remember that.

Q. You think that reference is wrong?

A. I mean to say I am not certain which Routh case was reported in the Martindale & Prescott extra Pharmacopœia.

Q. Now, isn't it true that coffee has been taken for the purpose of producing abortion?

A. Yes, so has everything else.

Q. Well, what about bread?

A. I don't know whether bread has —

Q. Then you are mistaken in your statement that everything else has.

A. And air has been pumped into the uterus for that purpose which is pretty near as simple as bread, and by the by, a certain form of bread made with rye flour, in which is used ergot, will produce abortion.

Q. I object to the injection of ergot, that is entirely foreign to this controversy.

Mr. Sizer: He asked him if it ever did, and he said rye bread containing ergot —

Mr. Miller: (Interrupting.) He said rye bread and ergot.

The Court: Ergot would be known as a drug.

BY MR. MILLER:

Q. Now, didn't you report and isn't it true that the depressant action of the heart after the administration of doses of caffeine has a depressant reflex stimulant action and inhibitory control of the heart, and last there follows rapid, feeble heart beat which gradually increases until contraction ceases?

A. That is not my statement, it must be a quotation

from some book.

Q. Well, it is a quotation from Buck, you quoted that.

A. I think so, but I didn't conclude that the quotation from Buck is true. A man by the name of Buck edited the Encyclopædia of Medicine which is known as Buck's Encyclopedia, and some other medical men than Buck whose name slips my mind now, wrote all the articles on therapeutics in that Encyclopedia.

Q. And that was a primary action you were describing of caffeine in your opinion to the Coca Cola Company?

A. Not in my opinion. I sent him all the literature I could find. I sent Mr. Hirsch all the literature I could find favorable or unfavorable, to caffeine.

The Court: If that is not your opinion, I will exclude that. You reading parts of that before the jury, Mr. Miller, and if he is quoting authors there, don't read from the authors.

BY MR. MILLER:

Q. In the opinion that you gave to Mr. Hirsch, did you state that your opinion, I mean, with your opinion, did you quote references that were both favorable and unfavorable?

A. Well, I don't know whether I made that statement in that particular paper, but I repeatedly in conference with Mr. Hirsch and probably in letters, told him that I believed it was wise to find everything against his side as well as everything for it, and I would report everything.

Q. As a matter of fact, you did not report the Zenetz cases and Allard cases and Bullard cases in here at all.

A. No, sir; I did not because they are not truthful cases.

Q. Not truthful what?

A. Not truthful cases.

Q. Then you regard this case as reported by Buck as a truthful case or else you would not have reported it?

A. No, sir; I don't know anything about Buck's case, I did not report his case. He does not give any details —

Q. (Interrupting.) If you undertood only to report the truthful cases, how can you say then these were not truthful cases when they were reported in your opinion?

A. I didn't say no such a thing—that is putting words in my mouth, unless I misunderstood your question.

Q. I ask you again whether you reported the case reported by Buck in quotations and if you did not give it as being official and reliable?

A. I did not consider that quotation from Buck as official and reliable because it states that there is a case, but no details of the case are given which enables one to

judge concerning it.

Q. Well, do you regard that book as reliable and standard authority?

A. I have already said that Buck did not write that, another man wrote it who was comparatively unknown.

Mr. Sizer: We object to that.

The Court: I exclude that.

Mr. Miller: I am not asking—I am just asking him about how Buck stands as an authority.

The Witness: Buck don't stand at all as an authority.

BY MR. MILLER:

Q. Then, why did you quote from Buck in your opinion to Mr. Hirsch?

A. I told Mr. Hirsch I was going to submit everything to him I could find in regard to the matter, both favorable and unfavorable.

Q. But in that same connection, you also stated you did not submit the Zenetz and the Allard cases which you knew of in that connection—I want to know why —

The Court: (Interrupting.) That has been gone into.

BY MR. MILLER:

Q. Why you would submit the Buck cases and not those of Zenetz and Allard?

The Court: That has been answered sufficiently by the witness.

BY MR. MILLER:

Q. What are meant by medicinal doses of caffeine, Doctor?

A. Doses such as are given by physicians to patients who, by reason of their condition of health require medicine to better them.

Q. And did you not state in your work that you wrote on Practical Therapeutics that the empyreumatic oil of coffee of which there is about one-half to one teaspoonful in each well-made breakfast cup, has no physiological effect?

Mr. Sizer: Refer to the page there.

Mr. Miller: I am referring to page 142.

The Witness: I remember that statement very well.

BY MR. MILLER:

Q. Is that true or not true.

A. And I find in my notes in regard to Routh in the Lancet 1883, volume 1, Page 680. The case was that of a man of 65 who had a weak heart and had taken 60 grains of citrate of caffeine, equal to thirty grains of caffeine and

vomited 45 minutes later. He had some nausea with the vomiting and some muscular weakness and some giddiness, his pulse was rapid, 120, and he had a cold clammy skin, no disturbance of consciousness, and further Routh says that this is the only case on record of caffeine poisoning in a human being, and all those symptoms are much more characteristic of a man who has a weak heart than they are of a man who is poisoned or has been poisoned by caffeine.

Q. Now, if all that has come to light why didn't you state that in conection with the Routh case when you were writing the opinion?

A. Because I imagine when I wrote that opinion that I had not looked up all the details of the Routh case.

Q. Now let us get back to this empyreumatic oil statement, and I ask you again if you did not make the statement credited to you about empyreumatic oil on page 142 of your book?

A. I remember the statement without looking at the book and I will explain it.

Q. Is it literally correct as I read it?

The Court: Did you state it?

The Witness: I did state it, yes. May I explain now?

The Court: Yes, but counsel first wanted an answer to his question and you may now explain it.

A. About twenty years ago, Dr. John Marshall and myself made an investigation of this empyreumatic oil of coffee, he preparing the empyreumatic oil and I studying its effect on animals. We published our results. A year or two later Dr. E. T. Reichert, the professor of Physiology in the University of Pennsylvania, distilled some of this oil and made experiments and came to conclusions which were not in accord with our own, and which seemed to prove that the effect produced in my experiments were more due to the fact that this substance was an oil than that it possessed any inherent properties of its own, and that was the reason that I put in this statement in the book concerning empyreumatic oil. I considered that Doctor Reichert's work, bringing up the question of the action of the oil as an oil, was probably better than my own and that I might have overlooked that matter but I am inclined to change my opinion because I am looking into his methods and those of Doctor Marshall and I think Reichert's methods were not as good as Doctor Marshall's and therefore the chances are that there is a larger factor of error in his work than in mine.

Q. That book was published in 1909?

A. The thirteenth edition.

Q. You have changed your opinion since then?

A. No, sir; I have not changed my opinion since then. I think another research will have to be made to determine the physiological action of empyreumatic oil.

Q. Now, as to the physiological action of caffeine on the nervous system, on page 142 I find, speaking of the nervous system:

> "Caffeine acts as a rapidly acting stimulant, exerting its chief influence on the brain and spinal chord."

A. There is no question about that.

Q. "By its cerebral effect it causes increased rapidity of thought and by its influence on the spinal cord is causes reflex activity."

A. I think I say "increased reflex activity."

Q. "And it increases the reflex activity."

A. That is right; I thought you had left out that word.

Q. "And for that reason is said to make people nervous."

A. It is said to make people nervous. I do not say so; I say: "It is said."

Q. Now, if you did not subscribe to that view or if you held a contrary view, why didn't you say so in that connection?

A. I do not hold a contrary view. I am there stating that it is said to make people nervous. I do not find that it makes me nervous, but I would not consider that I was justified in writing a book which is supposed to present a fair summing up of common knowledge unless I paid respectful attention to the opinions of some other people.

Q. You were then dealing with the physiological effect of this drug and for the benefit of those practitioners who used your work?

A. Exactly.

Q. Now, if you held a contrary opinion to that, would not you have stated then and there?

A. If I had held a contrary opinion, yes. It is a matter of dose, however. I am entirely agreeable to the proposition that caffeine in some doses makes people nervous—large doses.

Q. Now, if you had had reference to large doses, would not you have said so right there?

A. I did not have reference to any dose. I put the word "nervous" there in quotation. The reason I put that word "nervous" in quotation marks is because I do not think "nervous" is the scientific term. "Nervous" is a term applied by people to express a state of mind or body

hich you might say that they are on "wire edge." not any more scientific in its description.

Do you regard Schmiedeberg as a standard auth- with respect to the toxicty or physiological action ffeine?

I do not know whether he is considered, all that ys as to caffeine, but I should say that Schmiedeberg the greatest living pharmacologist.

You would think he was a standard reputable auth- ?

Anything he said based on his own knowledge and quoted from other authorities, I would regard with reatest possible respect.

On page 97 of Schmiedeberg's book —

e Court: This witness did not express an opinion oisons based on authorities and I think that is in- etent. He gave his personal experience, the fact that were no cases reported in the literature and the that in his opinion the inclusion is certain books g poisons of caffeine, was not logical.

BY MR. MILLER:

Do you or not base your opinion on your reading e literature or do you base it entirely on your ex- nentation and observation?

My opinion as to what?

As to the effects of caffeine on the human system.

e Court: As to being non-poisonous.

I base my opinion as to its non-poisonous effects ersonal observation, and upon the fact that from a wide knowledge of literature, dealing with drugs, I always never found any instance reported in which ine had produced disagreeable effects, and that means only that I was thoroughly familiar with the stand- works but also means that during the last twenty s I have been the editor of the Therapeutic Gazette, onthly journal dealing with the effects of drugs, and ceive in exchange all the medical journals of the d, and it is my duty as editor to cull from those nals anything which I think will be of interest to the ession; and during all of those twenty years my gen- impression has been that nothing has appeared con- ing caffeine, although I know that these Zenetz cases appeared during that time and it is quite conceivable one or two or three may have slipped my observation. that is the general impression I have gotten from a y accurate observation of medical literature.

Your opinion was based on that knowledge ac-

quired in that way from the medical literature and from your observation and experience?

A. Yes, sir.

The Court: That opinion from literature is that there are no recorded cases of poisoning from caffeine, or do you mean that it is broader, that the scientific opinion is that it is not a poison? I thought I understood you at first but I have now some doubt.

The Witness: I mean that as the result of a fairly intimate knowledge with medical literature I am led to believe personally that caffeine is not correctly classed amongst the poisonous drugs,—and if you will pardon me, I forget the last part of your question, your Honor.

The Court: The point of inquiry was whether your opinion was based upon the opinion of authorities upon that question or based upon the recorded cases as a distinction. If your opinion is based simply upon recorded cases, that permits certain questions; if it is based upon the opinions of authorities from specific cases, another line of evidence would be competent. Now, what is your opinion based on?

The Witness: On both. In the first place, I have not found such cases; and in the second place, the cases reported are not reliable.

Mr. Miller: Then I can examine as to Schmiedeberg.

The Court: Your answer is contradictory; you say it is based on general literature and in the next place you qualify it by limiting it to the effect of recorded cases.

The Witness: I am sorry. I can put it in another way. If I should say that I have lived in Philadelphia many years and have never seen a man run over by a trolley car, I would state the result of my observation and personal experience, but I would have to say that reading the literature of the times I know that trolley car accidents occur. But in this particular instance, while I know that caffeine accidents have been reported, the method of reporting them and the description of the cases are such as to lead me to believe they were not caffeine.

The Court: The question is this: Is your opinion expressed upon examination in chief that caffeine is not a poison, based in whole or in part upon the opinion of toxicological authorities as distinguished from the question of recorded cases? That is, does it involve the assertion that the weight of the toxicological authorities—that is, of the opinions of authorities in that line—that it does not poison, as contradistinguished from the effect of the recorded cases on the subject?

The Witness: The difficulty in that matter is that the

authorities are divided in that most if not all of the English speaking authorities do not class it as a poison, and most if not all of the German and other authorities do class it as a poison.

The Court: Is your opinion that it is not a poison based upon the authoritive expression of opinion on that subject as distinguished from your own observation and your own reading of cases?

The Witness: It is based upon my own observation and my own reading of the cases.

The Court: That is what I understood originally.

BY MR. MILLER:

Q. Is it in part based on what medical authorities have said on the subject?

Mr. Sizer: That gets back to the same confusion because it does not distinguish between what other authorities have said with respect to specific cases and their opinions.

BY MR. MILLER:

Q. Well, then I will ask this question,—whether or not the opinion you have expressed here to-day has been based in whole or in part on the opinion expressed by medical writers and standard authorities as respects the action of caffeine as a toxic agent?

A. I have no intention of trying to dodge the question but I do not think any truthful man who has read anything can say his opinion is not tinctured to a certain extent by what he has read. You cannot live in the world without being influenced by the things you see and hear. Therefore I could not make oath and say that my opinion was not in any way based on something that someone has written. Unconsciously it is done by all of us all the time.

Mr. Miller: Now can I ask as to Schmiedeberg?

The Court: Do you put it in this way, Doctor: Does your expression of opinion that caffeine is not a poison intend to involve the assertion that that is the weight of authority on the subject?

The Witness: It is.

The Court: Then you may cross-examine on that.

BY MR. MILLER:

Q. Now, I ask you if Schmiedeberg does not say that from seven and a half to nine grains of caffeine may cause symptoms of intoxication—on page 97?

A. I have not the book but I will take your word for it.

Q. That is your recollection of what Schmiedeberg

does say?

A. I have no recollection but I am perfectly willing to admit he says it if you say so.

Q. By caffeine intoxication or symptoms of intoxication, what is meant?

A. Symptoms of its influence develop in a marked degree.

Q. Does not "increase of reflex irritability," as used by yourself, tend to make people more nervous?

A. Would you mind giving me a reference to that?

Q. I find it on page 142 where it says: "By its cerebral effect it causes increased rapidity of thought and by its influence on the spinal cord it causes increased reflex irritabiity."

A. No, sir. It says "activity."

Q. What is meant by "increased reflex activity" there?

A. It means if I make a pass at a man's face he winks faster if he has taken caffeine. If I hit his foot, it jerks away quicker if he has taken caffeine.

Q. That effects the muscles?

A. No, sir; the spinal cord and the nerves; indirectly, of course, it affects the muscles.

Q. In that same connection you state: "It is important to remember that it has no effect on the brain protoplasm except to stimulate and that ultimately the brain, driven along by caffeine, breaks down," —

A. Yes.

Q. —"by the concentration of its energy, for the time being in one effort."

A. Yes, sir.

Q. What is the result of the breaking down of a man's brain by the concentration of its energy in one effort?

A. Sleeplessness, wretchedness as to his mental state —that is to say, he may be depressed and miserable and irritable, if you like, down-on-his-luck, and perhaps not competent to do his ordinary daily mental task as well as possible, but you have misinterpreted the meaning of that sentence, if I gather the meaning of your question correctly.

Q. I read it literally.

A. Yes, but did not intrepret it right.

Q. I didn't give any interpretation; I asked you what you meant.

A. Then I will tell you.

Q. That is what I asked you.

A. In the first place I say it does not affect the brain protoplasm except to stimulate, which means it has no other effect except stimulating. And in the last sentence I say:

"Ultimately a brain driven by caffeine breaks down" etc. I do not mean that the man who takes caffeine every day breaks down if he gets his ordinary quantity of rest and sleep and food. In that connection I might say that a horse that was whipped and spurred and driven along would ultimately break down. Now, nobody would suppose that I meant if I put the whip and the spur to a horse every day in the week and gave him his food and ordinary rest in the stable that he would break down because I whipped and spurred him, and if I spoke of a horse that way they would understand that if a horse was driven along hour after hour, without proper food or rest, he would ultimately break down. And I wrote that with particular reference to medical students who frequently before coming to my examination room were in the habit of attempting to study for two days and two nights without any sleep whatever and by taking continually strong coffee, sometimes every hour to keep going. And those were the people who, when they got in my examination room, became, to use the phrase of the student, "rattled" when they missed a question.

Q. Do you mean to state by that that constant brain stimulation would not ultimately cause changes in the protoplasm of the brain?

A. It has not in my own case and in the last six years I have taken caffeine.

Q. Of course you do not know about that?

A. You can judge as well as I.

Q. I did not quite catch what your statement was as to the raising of the blood pressure. I find that you state that it certainly seems to raise the blood pressure in almost every instance in which it is used. What is your explanation of that sentence?

A. I am speaking there of its action in circulatory failure. I am not referring to a healthy person.

Q. You don't say that.

A. I don't say it but that is what I mean and I don't say anything which contradicts that meaning, and I have already explained that this is a matter which is still under debate medically and I have every reason to approve of that.

Q. You are treating of that under the sub-title of "Physiological Action?"

A. Yes, sir.

Q. Now, when you refer to physiological action and follow that by the circulation, do you mean to say that you were referring to sick people?

A. Of course, the general practice holds true that

that part of the text is dealing with the subject of the influence of caffeine on man and animals when administered experimentally to determine its influence in contradistinction to the second page where it speaks of therapeutics, but it is quite impossible in writing a book of this kind to sharply differentiate one from the other and there are many sentences all through the book under the head of "Physiological Action" which, perhaps more correctly from a very rigid rule, would be put under "Therapeutics."

Q. As a general rule, medical treatises first speak of the general physiological action where you had administered to well people, and then as you do on the following page, speak of it therapeutically?

A. That is very true, and that is one of the chief distinctions between my books and others, and that is the reason my book is in eighty-eight schools and the others are not, because I combine our knowledge of the influence on animals and of the influence on man and so make it more interesting.

Q. Then you think that the influence of the drug on animals has a considerable influence in determining its effect on man?

A. Yes—of some value.

Q. Now, referring to the untoward effects, on page 44 of your book, you say: "The writer has also seen a marked rise of temperature following its use in doses of two grains three times a day."

A. Yes.

Q. "But that is unusual."

A. Yes, sir.

Q. You were the writer of the book?

A. Sure.

Q. You have seen a marked rise in temperature following the administration of two grains?

A. Yes, sir.

Q. Now, a rise in temperature is what we have when we have various forms of fever?

A. Surely, but I say that is not usual, and I am reporting that with a deliberate purpose of emphasizing the fact that it is not usual. I am making that statement because if Doctor Brown of Oklahoma, who has not had much experience, by some odd chance had such a patient and wondered whether in the world anybody had ever seen such a thing before, he might be interested to find that I had seen it, but it is not common.

Q. You wrote that in the book for the benefit of Doctor Brown instead of writing him a letter?

A. Yes, sir; Doctor Brown is a suppositious person.

Q. Now, is it not true that caffeine often produces so much insomnia or sleeplessness when given in cases of cardiac disease that its use has to be discontinued?

A. Certainly, it is; but where I am talking of cardiac disease there I am talking about a man so sick from cardiac disease that he is in bed, and unable to get about and those people are peculiarly susceptible to caffeine or anything which acts as a stimulant or pick-me-up to the nervous system. Many cases of cardiac disease—heart disease,—sick enough to be in bed, have a tendency to be delirious, sometimes they even get up out of bed and throw themselves out of the window. Now, under such circumstances the use of caffeine might stimulate them and increase their fanciful delusions more than if they had not taken it.

Q. Is it true that the heart is that susceptible to the effects of caffeine?

A. No. A man does not get delirious of any influence on the heart, but because of the influence on the brain.

Q. And is it not true that its use, if persisted in, may produce a condition of delirium closely resembling that of alcoholism?

A. In those cases, yes.

Q. Is it true that in various persons the habitual use of coffee causes insomnia, tremors, palpitation and gastralgia and emaciation?

A. Of coffee, yes. It does in me. I have already testified that coffee does but caffeine does not with me.

Q. Did you ever make a careful experimental study on humans to determine if caffeine is or is not poisonous?

A. If you mean by that to inquire whether I have ever deliberately taken a human being and piled caffeine into him until I could find whether I could possibly hurt him by doing so, certainly not.

Q. The action of caffeine on animals is one of the most usual and ordinary means of information we have to determine the physiological action of the drug, is it not?

A. No, sir; I should say that caffeine is one of the drugs which lends itself least to giving us results in animal experimentation because its chief activities are connected with the mental processes which we have no accurate means of studying while they are going on as processes themselves. We have accurate means of studying the mental processes as presented by Professor Hollingsworth, but we cannot look at the brain and see it functionating, cannot see it changing under the influence of caffeine,—for instance, as we can look at the heart and

see it changing under digitalis. Therefore I would say that animal experimentation under caffeine was less productive of good results than many other drugs.

Q. I think that is true. Now, in preparing your opinion in this case for use of adversary counsel, didn't you especially call attention of them to the fact that the word "doses" was used in certain connection by certain medical authorities rather than "dose," although you add, "the author may mean one dose?"

A. I think it likely I did but I do not remember whether I made such a distinction, but it is quite a natural distinction to make.

Q. Do you state that the only contra-indication to the use of caffeine is acute in inflammation with reference to the kidneys?

A. Referring to my book?

Q. Referring to your opinion.

The Court: That is not competent. I think I am in error about that; you may ask that question.

Mr. Miller: Repeat that question.

(The question was read.)

A. If I am discussing kidney disease, I have stated that, yes.

BY MR. MILLER:

Q. And by contra-indication you mean —

A. — that it ought not to be given.

Q. In that same opinion don't you refer to caffeine as a drug?

The Court: That has been stated over and over again.

BY MR. MILLER:

Q. Don't you, as part of that opinion or as a part of the excerpts and opinion combined prepared for adverse counsel —

The Court: That is pretty wide.

BY MR. MILLER:

Q. Then don't you state in discussing the dosage of caffeine and in digesting the authorities on that point, that as the depressant action replaces the stimulant—referring to caffeine—the inhibitory control of the heart is less, and therefore a rapid and feeble heart beat which greatly increases until contraction ceases —

A. You read that once before and I said I didn't write it myself, but it was quoted.

The Court: And it should not go before the jury unless it is an opinion expressed by this witness.

Mr. Sizer: I move to exclude that because Mr. Miller

stated that the witness expressed that in his brief. It is not an opinion of the witness but a medical brief that he has written.

The Court: I exclude it. The witness states that he has stated opinions on both sides and it is not competent and ought not to go before the jury unless an opinion expressed by himself contradicting something he has stated.

Mr. Miller: I submit to your Honor whether or not I am entitled to it. Here is the heading of this article; I do not care to read it but I will submit it to your Honor and then after looking at it you can pass over it.

The Witness: I have read it aloud and I did not put that at the top of it.

BY MR. MILLER:

Q. You did not?

A. Certainly not. It is not my opinion.

The Court: The witness may be contradicted by any personal expression of opinion he has made contrary to what he has said here, but if a man writes an opinion and cites authorities on both sides, it is not fair or just to the witness to read one of those quotations of authority as contradiction of his opinion when he has stated his opin ion and given the authorities on both sides.

BY MR. MILLER:

Q. Now, did you use this language yourself in that connection —

The Court: Before reading it let him look at it and see.

BY MR. MILLER:

Q. All right. I refer, Doctor, to those three lines that precede certain things which I am about to read.

A. You mean the three lines enclosed in pencil?

Q. Yes.

A. You will pardon me, I have to take some time to read the preceding paragraph to see what I am saying. Now, your question is whether I wrote those three lines myself?

Q. Yes.

A. My recollection is that is my opinion and it is based upon the quotation.

The Court: That was not the question; it was whether you wrote it.

The Witness: I wrote it.

Mr. Miller: Now, I submit I can read it.

The Court: If it contradicts anything he has said, yes.

Mr. Miller: "In this denial as to the deleteriousness and injuriousness and in support of this view the following evi-

dence may be submitted." Now, I want to submit that evidence because that is the excerpt to which I refer.

The Court: He expresses an opinion denying the deleteriousness.

Mr. Miller: Yes, and he says: "In support of this view the following evidence may be submitted."

The Court: That is immaterial.

BY MR. MILLER:

Q. Then, if I understood you, are the authorities on which you base that opinion —

The Court: We will not go into the authorities. He has expressed the opinion that it is deleterious and he expresses it now, and that does not contradict his opinion.

Mr. Hirsch: I think it is only fair to Dr. Hare that it should be stated in there what he reported—he said he reported both the favorable and unfavorable.

The Witness: I gave not only the favorable but the unfavorable —

The Court: That is the substance of that opinion. The expression of his opinion, his own opinions, in so far as they have been expressed, are competent to contradict him, but any authorities that you have gathered there are not.

Mr. Miller: The pharseology immediately preceding the three last lines which I read was a little quotation from the pleadings in the case.

The Court: That is immaterial.

BY MR. MILLER:

Q. Did you or not as a part of your opinion make this statement —

Mr. Hirsch: Hand it to him.

The Court: Let the witness have it.

Mr. Miller: I will show it by marks around it.

The Witness: Yes, I wrote that,—I think I did, but if I did not write that, that is my opinion now.

BY MR. MILLER:

Q. And in that you stated: "This brings up the point of what is a poison. As you know, this has been fought over for years. Anything is a poison if the dose be small enough and anything is non-poisonous that is not capable of doing harm if the dose be large enough, including water, molasses and a host of foods." Is that your opinion?

A. That is my opinion.

Q. Sir?

A. That is my opinion.

Q. Now then, is Potter's Materia Medica, Pharmacology and Therapeutics, regarded as a standard authority, Doctor?

A. I hesitated—not because of any doubt in my mind—no, it is not.

Q. Did you not quote Potter in your book?

A. I do not think I did; it is possible that I did.

Q. Would you have quoted Potter if you had not thought him an authority?

A. I beg your pardon?

Q. I say, would you have quoted Potter if you had not thought him good authority?

A. Oh, yes; I might have quoted him if he had quoted some author and had not given any reference and I had to take his word for it. One reason I think Potter is not a standard authority is that there are many statements in his book which are just made up of hundreds of clippings taken from various medical journals without any effort on behalf of Potter to eliminate the good from the bad, and as the result there is some recommendation made in his book that would subject anybody who followed them to a suit for malpractice.

Q. Horatio G. Wood's book is a standard authority, is it?

A. A very good authority. I helped Doctor Wood edit the seventh edition of that book. His son was not old enoungh to do any work on that.

Q. Now, just a moment on that. You know Wood's book?

A. Yes.

Q. Well, he refers to the fact that there was a case of caffeine poisoning, does he not?

A. Well, I have not read Wood's book for a number of years. I am perfectly willing to take your word for it. I do not remember that.

Q. And that eight grains of caffeine increased the frequency of the pulse, frequent urination, tremors, excited the mental condition, passing into a form of delirium, with deep sleep?

A. That does not report a definite case and you have not read it to me showing that it is a definite accurate description of a case, and there is nothing to prove that Doctor Wood looked up a reference to that case, and it is quite possible if he had looked it up, it might have been something like one of these Allard cases, due to something else.

Q. Now then, in Wood it is likewise stated that an adult took sixty grains of so-called citrate which you un-

derstand to mean thirty grains of alkaloid, and that produced burning in the throat, giddiness, faintness, tremors, insomnia, burning in the stomach and bowels, and collapse followed.

A. Give me the name of the individual who made that report.

Q. I am reading on page 217, or what is supposed to be on page 217; that is the Routh case, isn't it?

A. I do not know whether it is the Routh case.

Q. Well, is that what appears on page 217?

A. That is not my book—I have not read the book.

Q. You do not know how that is, then?

A. No, sir.

Q. Didn't you state as a part of your opinion that Wood had had no experience with the use of caffeine as a general stimulant for acute adenia?

A. No, I did not. I did not say what experience Wood has had.

The Court: If that does not contradict anything he has said I exclude it.

Mr. Miller: I asked it for the purpose of ascertaining whether this witness knows.

BY MR. MILLER:

Q. Do you know whether Doctor Wood has had any experience or not —

Mr. Sizer: I object to that.

The Court: That is immaterial.

Mr. Miller: I mean the Mr. Wood who was on the stand the other day.

Mr. Sizer: Dr. H. C. Wood testified to certain experiments he made.

Mr. Miller: I understood that he testified as a practicing physician.

The Court: I thought you meant Wood, the author.

The Witness: They are both authors in that book.

The Court: I supposed he meant the father —

Mr. Miller: I am speaking of the one who was on the witness stand, and he was speaking of both, and I suppose I cannot be wrong about having the identical person.

The Court: I do not remember whether the witness testified as to any matter of his personal experience —

Mr. Sizer: The point is the written opinion that Doctor Hare wrote would not be admissible as to the qualification—would not be admissible, Doctor Hare's opinion—that is not contradictory of anything Doctor Hare has stated.

Mr. Miller: I asked him whether he knows if Doctor Wood has conducted any experiments along that line.

The Court: For what purpose?

Mr. Miller: He knows whether Doctor Wood has had any such connection —

The Court: Do you want to show by this witness that another man did not do what he says?

Mr. Miller: I infer from what he says —

The Witness: I have not said anything in connection with that matter —

BY MR. MILLER:

Q. I will ask you whether or not you know he has made any experiments or has not.

A. Your question is asked as to whether Horatio C. Wood, Jr., has made any experiments and my answer to that, by "experiments" you mean results you reported the other day, and I do know it because I told him how I thought they ought to be made and he came and told me the results that he had obtained from them. The prior question you asked me was a question that practically involves whether or not H. C. Wood had made any experiments and whether Wood, Jr., or Senior had any experience with administering caffeine,—I don't know anything about that.

Q. How did you come to have Doctor Wood make these experiments, were they made for the purpose of being used in this case?

A. Yes, they were made for the purpose of being used in this case. You asked me first as to how he came to make the experiments and I will say I got him to make them because I have known him all his life and have a high opinion of his reliability, I knew the laboratories in which he had worked abroad and had asked him to write the opening article for the last encyclopedia of treatment which I edited, and had every confidence that the work he carried out would be A. No. 1 in every respect.

Q. Now then, in that connection, as you state that Wood is a reliable authority, I ask you if you agree with his statement as to caffeine: "It is a powerful muscular poison—it first produces a condition in which there is exaggerated muscular excitability, with a tendency to tetanic contractions upon momentary stimulation, and afterwards a stage of stiffness, weakness, and finally lost excitability."

A. I have difficulty in answering that question directly. I do not know that anybody knows except the two Woods which one wrote that, and I do not know which Wood you refer to when you ask if I agree with "Wood."

And if you refer to the specific proposition, irrespective of the Woods, I say I believe that is a correct description of what happens to a muscle immersed with caffeine of any considerable strength and capable of acting in the way described.

Mr. Sizer: We move to exclude that because your Honor has already ruled that tests and experiments made by direct application to the muscle were not material in this case.

Mr. Miller: There is nothing to show that that was the way in which this was applied.

The Court: The witness states he so construes it and if that be the reasonable construction of it —

Mr. Sizer: Nothing to show that it is not, and therefore it has no bearing on the case.

Mr. Miller: I submit that this is a treatise on therapeutics by Wood, that is, a summary of his conclusions, and in the conclusion it does not appear anywhere. It has been brought out by a number of witnesses that where there was anything unusual in the symptoms or the conclusions, it would be shown by the authors, and in the context there is nothing to show to the contrary, and therefore we must act on the assumption that these conclusions are drawn, not from the direct application, because there is nothing to show that, and your Honor certainly recalls what the proof has been on that point, and if anything of that kind occurred it would have been shown by the author.

Mr. Sizer: This statement is not admissible as direct evidence at all. Doctor Hare says this is a reliable authority and it does not contradict anything that Doctor Hare says—it does not have that effect.

The Court: The witness has stated his answer, on direct examination, that the weight of authorities is that caffeine is not a poison and it is offered for the purpose of contradiction to that. If it relates to the administration of caffeine as a drug or beverage, I think it would have a tendency to contradict him. But if it relates to its direct application to the muscle, it appears to me it is not contradictory of any opinion expressed on direct examination. Let me see the book.

The Witness: Your Honor, may I point out a fact in regard to that book?—The title of that book for the first ten editions was :"A Treatise on Materia Medica, Therapeutics and Toxicology," and in order to make it apparently more attractive to the general practitioner, its title was changed to: "Therapeutics, Its Principles and Practice," but all the toxicology characteristic of the book was

contained in it and it is as much a text book as ever on therapeutic materia medica and toxicology. And although its title was changed, nevertheless it treats of toxicology or poisonous doses.

BY MR. MILLER:

Q. And you do that same way in your book?

A. I have never changed the title of my book.

Q. Well, you discuss poisons in the same relations?

A. I do not claim my book is a book on toxicology and he does.

Q. Well, you undertook to tell us what a poison was, didn't you?

A. I don't remember whether I undertook to tell you what a poison was. I stated that caffeine was not a poison.

Q. And that involves a mere conclusion without any knowledge of toxicology when you attempt to state that before the jury?

A. I may have certain knowledge that is not in my book.

The Court: It appears from page 212 of this work of Wood's which precedes by four pages the summary on page 216, which has been offered in evidence, under the title: "Muscle.—The action of caffeine upon the muscle is readily demonstrated by throwing the isolated gastrocnemius of the frog in one per cent or even weaker solution. In from two to three minutes the muscles become markedly contracted, swollen, round, stiff, and unable to respond to the galvanic current." It occurs to me that that summary has reference back to the previous paragraph which is intended to illustrate the direct influence of caffeine acting upon the muscle in solution and I think it is so remote from this present investigation that it would only have the effect of being misleading and confusing.

BY MR. MILLER:

Q. Caffeine does reach the muscle when administered by way of the mouth?

A. Probably it does.

Q. And these experiments, as you recall them, in Doctor Wood's treatises, were made for the purpose of showing what might happen when caffeine reached the muscle through the blood?

A. No, sir. I have just stated, I believe they were experiments to show what happened when the caffeine came in direct contact with the muscle.

Q. Under what circumstances is caffeine ever brought in direct contact with the human muscle?

A. Never.

Q. Then what was it put in that book for, Wood's book, that way? If that is so, it would not be a standard authority?

A. It was not put in Wood's book that caffeine is directly applied to the muscle of human beings. The object of incorporating this in Wood's book was to show the effect of experimentation on the muscle when it was directly applied.

Q. The object of it was to incorporate this in Wood's book so as to show the effect of caffeine on the muscle when administered through the mouth?

A. No; when it was directly applied, and Doctor Wood's book is not solely as to the effect of caffeine upon human beings, but is very largely devoted and understood to be a summary of effects of drugs on animals, independent of the relation of effects on human beings.

Q. And the object of that, which you helped to write, was to enlighten the practitioner and student as to the effect of caffeine on the human system?

A. No, no.

The Court: It is immaterial what the object is. The Court has read it and has excluded it.

Mr. Miller: We desire to note an exception. The four or five pages preceding that, we desire to have read into the record, preceding the summary.

The Court: As I have said, I think it would only lead to unnecessary complication in this case. It may be true that caffeine when directly applied to the muscles may have a certain effect, but in the most remote light, as when caffeine is administered through the mouth. It is clear that caffeine is broken down somewhere in the system and demethylated and broken into various xanthine bases and which one of these reaches the muscle, in what quantity they reach the muscle, in what minute particles and in what succession is so obscure as a scientific fact, that it will only be misleading in the opinion of the Court to attempt to draw any conclusion as to the effects of caffeine on the human system from experiments based on direct application of a solution of caffeine to the muscle, and for that reason, to avoid complication, as it has so little bearing, I exclude it.

BY MR. MILLER:

Q. Are you aware of any treatises that express the opinion that caffeine administered by way of mouth does not reach the muscle, or any treatises that teach it does not reach the muscle?

A. I do not know of any treatise which teaches it does or does not reach the muscle as caffeine.

The Court: If the witness' opinion on direct examination when he stated what he did was based in part on knowledge of Doctor Schmeideberg's opinion, I think you can cross-examine him on it and he may on re-examination state if Schmeideberg's work is a good opinion without reading it.

RE-DIRECT EXAMINATION.
BY MR. SIZER:

Q. I will ask you whether or not—or what date that paper bears.

A. Strassburg, the 23rd of November, 1910.

Q. State whether or not that opinion of Doctor Schmideberg confirms the opinion you have expressed on the witness stand in your direct examination.

Mr. Miller: I object to that because that seeks to ask the witness for the contents of the paper.

Mr. Sizer: And I am offering the paper.

Mr. Miller: I object to it, in the first place; and in the second place, it does not appear that he is dealing with caffeine. I am informed that the article is in German and that Doctor Schmiedeberg is dealing with tea and coffee which have been distinctly ruled out on us.

Mr. Hirsch: Well, Mr. Miller is mistaken about that.

The Court: Pass the exhibit to Mr. Miller before you ask anybody's conclusion —

Mr. Sizer: I do not think your Honor has ruled out any opinion about tea and coffee. I think it has been gone into very fully by witnesses on both sides.

Mr. Miller: We asked for certain publications as to tea and coffee —

The Court: That is where they were in reference to certain specific questions—

Mr. Sizer: Mr. Miller is mistaken in respect to this opinion, because it is on the subject of caffeine.

The Court: I want it to be handed to him before any questions are asked.

Mr. Miller: This is in German and it takes time to have it translated.

Mr. Sizer: I will ask Doctor Boos to read the title to that article.

The Court: Just let them have that article and examine it before you ask the witness.

Mr. Sizer: I wanted to see whether the article was on caffeine.

The Court: Just let them have it and you can offer

him, recall him.

Mr. Sizer: All right.

BY MR. SIZER:

Q. Did you furnish a copy to counsel for the Government of your opinion that you furnished or prepared for Mr. Hirsch?

A. Certainly not.

Q. Have you any idea how counsel got hold of it in this case?

Mr. Miller: I object to that.

BY MR. SIZER:

Q. Do you know how counsel for the Government got hold of it?

The Court: I do not see how it is material.

Mr. Sizer: I think if we can find out —

The Court: It makes no difference how they got it, for the effect of it in this testimony is the same. It does not have any effect one way or the other how they got it.

BY MR. SIZER:

Q. I want to get you to state exactly what you meant in an answer you gave on cross-examination to the effect that caffeine should not be used in acute kidney trouble. Did you mean by that it causes kidney trouble or that it is a substance which should not be given in acute kidney trouble?

A. I meant the latter. I said in acute inflammation of the kidney.

Q. You say it simply would not be proper to give it in that kind of trouble?

A. A person suffering from acute inflammation of the kidneys is a person who is in bed, or ought to be in bed.

Q. Now, referring to this Routh case, you say that according to the report of that case that man took citrate of caffeine?

A. Yes, sir.

Q. Well, what would be the effect of the citrate of caffeine in developing the symptoms that you explained on cross-examination?

A. Well, that would cause nausea and vomiting. It would be thirty grains of citric acid.

Q. And would that tend to produce those symptoms?

A. It certainly would.

Q. Is the word "poison" used in pathological works in a restricted—I mean, in pharmacological works, in a peculiar sense of in a sense different from that in which it is generally used, and if so, what is the manner in which it is used?

A. Yes, I think there is a little difference. But it may be, perhaps, after all a distinction without a real difference. In pharmacology, a man speaking of a substance being poisonous in its nature or that it produces certain effects which were injurious, I would understand that he meant a dose in excess of that commonly given medicinally. When a man in a book on toxicology spoke of a drug having produced a poison in one sense I would know that he meant a dose in excess of that commonly used medicinally, and I would understand that he was dealing with such effects as were intermedial in the other aspect of that question of whether a man had been damaged by its use.

RE-CROSS EXAMINATION.
BY MR. MILLER:

Q. Does not the ordinary lemon contain more than thirty grains of citric acid?

A. I am unable to answer that question. I do not know what percentage of citric acid is in the juice of one lemon, but if a man takes the juice of the lemon, he does not take thirty grains of pure citric acid, he takes thirty grains of citric acid mixed up with the water or the juice that the lemon makes.

Q. Well, it is owing to whether he sucks the lemon or not?

A. If he sucks the lemon he will get this unless somebody had been there before him.

Q. And he gets the citric acid in that connection?

A. Yes, sir; but in the dose of sixty grains, he gets thirty grains of pure citric acid, together with thirty grains of the caffeine, which is a solid substance.

Q. Why should not caffeine be given in kidney trouble?

A. I did not say that. I said it should not be given in acute inflammation of the kidney.

Q. Why not then?

A. Because in acute inflammation of the kidney, the kidneys are "hot," to use common language, and angry and bleeding, and any substance which acts as a stimulant or any substance which increases the functional activity of a part which is angry and inflamed—just as trotting a horse with an inflamed, hot knee is bad for it.

Q. And for that reason caffeine should not be given?

A. Under those circumstances, no.

RE-DIRECT EXAMINATION
BY MR. SIZER:

Q. May an agent or substance which increases phy-

sicological activity or stimulates, in other words, do so without producing any toxic effect?

A. Certainly it may.

RE-CROSS EXAMINATION.

BY MR. MILLER:

Q. Just a thought, Doctor: Kunkel is a standard authority?

A. I don't know a book by Kunkel. I have seen his name quoted frequently and as a man who has written articles for encyclopedical works.

Q. You do not base your opinion in any respect on what Doctor Kunkel said on the subject?

A. No, sir; not in the slightest.

Q. On the subject of the effects of caffeine?

A. No, sir; not at all.

(Witness excused.)

(The extracts offered from "Therapeutics, Its Principles and Practice," by Wood, which were excluded by the Court on page 2284 of this record, are as follows:)

"MUSCLE.—The action of caffeine upon the muscle is readily demonstrated by throwing the isolated gastrocnomius of the frog into a one-per-cent or even weaker solution; in from two to three minutes the muscle becomes markedly contracted, swollen, round, stiff, and unable to respond to the galvanic current. That it is the muscle-fibre which is affected is shown by the experiments of Pratt, who found that when an isolated muscle was soaked in a solution of curare until the nerves were killed, and then thrown into a solution of caffeine, the usual rigidity was developed. The elaborate studies of Leblond appear to prove that there are two stages (as in veratrine-poisoning) in the action of caffeine upon the frog muscle,—a primary stage, with exaggerated muscular excitability and a tendency to prolonged tetanic contractions after momentary stimulaion, and a final stage of rigidity and lost excitability.* W. Hebioranski believes that his erographic experiments prove that in fatigue caffeine not only stimulates the nervous system and thereby increases the working power, but also acts directly upon the muscle.

According to the researches of Paschkis and Pal, it would appear to be the Xanthine which influences the muscle-fibre, since these investigators found that caffeine (trimethylxanthine), theobromine (dimethylxanthine), and xanthine shared the activity; caffeine being the strongest, xanthine the weakest.

*Johannsen states that when a muscle under the microscope is touched with caffeine its fibres can be seen to

contract half their length.

CIRCULATION.—When given in a moderately large dose caffeine produces a marked increase in the rate of the pulse with an evelation of the blood-pressure. The increase in the pulse-rate is probably due to the stimulation of the cardio-accelerator mechanism, while the rise of pressure seems to be attributable to a stimulation of both the cardiac and arterial muscles.

According to Voit (quoted by Brill), in the frog the rapidity of the cardiac pulsation is at first increased, but the pulsations become slower and slower, and are accompanied by irregularity of rhythm, the heart finally ceasing to act, but still responding to stimuli at a time when the voluntary muscles are absolutely dead. Falk and Stuhlmann, and Johannsen observed that caffeine first increases and then lessens the frequency of the cardiac pulsations in the frog. According to Johannsen, the lessening of the frequency comes on the more quickly and the more powerfully as the size of the dose is increased. After a time the heart begins to beat irregularly, with short intermissions, which, as time goes on, grow longer and longer, till at last movement ceases. Johannsen found that the action upon the cut out frog's heart was the same upon the viscus in situ; Leblond confirms this and states that the heart is finally arrested in systole; so also does Thomas J. Mays. Aubert and Haase find that the action of the alkaloid upon the pulsations of the frog's heart varies greatly; and indeed the individual experiments of the authors previously quoted show such variation. This is confirmed by the research of Rioschiro Maki. This investigator experimented upon the cut-out frog's heart with the Williams apparatus, and found that the pulse was variously affected. In most of his experiments the arterial pressure—i. e.. the heart's work—was markedly lessened, but in a few cases it was distinctly increased.

Paul Faval finds that in a proportion of ten centigrammes to one hundred and fifty grammes of artificial blood the alkaloid reinforces the isolated frog's heart, givings its contractions more amplitude and more energy, but that stronger doses depress the heart, and finally arrest it in diastole; and H. C. Beyer has reached similar conclusions with the terrapin's heart.

MAMMAL.—The results by various experimenters as to the influence of caffeine on the circulation in mammals are in their general appearance contradictory, but are, however, we believe, reconcilable.

In attempting such reconciliation it seems better to discuss separately the effects of the drug upon arterial pressure and pulse-rate. In the Aubert and Haase experiments, caffeine usually produced pronounced fall of arterial pressure, although in one experiment there was a distinct rise. It is to be noted that the research was made with enormous doses of caffeine, and usually upon dogs under the influence of narcotics. In two experiments upon alcoholized dogs, Binz obtained a pronounced rise of the arterial pressure; while Naki, experimenting upon animals under the influence of atropine or chloral, obtained after large doses a distinct fall of the arterial pressure, which majority of the experiments the pressure exerted by the left heart was lowered, although in a considerable minority it was first elevated, especially when a small dose of the caffeine had been given. Bock concludes from these experiments that the elasticity of the heart-muscle is diminished by caffeine, and that the elevation of the arterial pressure naturally produced by caffeine in the normal animal is due to contraction of the blood-vessels. The method of experimentation seems to us very uncertain, and the result is in direct discord with other experiments already cited.

The total evidence seems to us conclusively to show that caffeine increases the arterial pressure independently of the vaso-motor centres.

In the advanced states of caffeine-poisoning both the heart and the vaso-motor system are without doubt depressed, so that the cause of the fall of pressure is duplex.

In regard to the pulse, Aubert notes as a constant effect an increase of the pulse-rate, and this appears to be the most frequent result produced by caffeine; but it has been shown by Reichert that under certain circumstances there is a slowing of the pulse.

Leven asserts that the increase of the pulse-rate is to be seen after isolation of the heart from the nervous centres, and is, therefore, due to an action upon the heart itself, a conclusion which is in accord with the general results of observations upon the isolated frog's heart, and is confirmed by Reichert, who believes that there are paralyses of the cardio-inhibitory centres, both in the in a few cases was preceded by a rise. It is evident that the method of research employed in these experiments makes it impossible to draw any very positive conclusions. In normal animals, Leven found in the first stages of caffeine-poisoning a distinct increase of the arterial pressure, and in the elaborate experiments of Reichert it was noted that is the normal dog caffeine injected into

the jugular vein, in moderate amount, caused a primary fall of pressure (evidently due to an overwhelming effect of the concentrated alkaloid upon the heart), followed by a rise above the norm, followed in turn, if the dose had been large enough, by a marked fall of pressure. Very large doses of caffeine produced a persistent fall of pressure, ending in final diastolic arrest of the heart. In none of Reichert's experiments was the rise of arterial pressure very great, but except after heavily toxic doses, it occurred almost invariably. Leven asserts that after he had divided the pneumogastrics and sympathetics and isolated the heart from all the nerve-centres, caffeine still increased the arterial pressure; while Rheichert states that not only is the increase of the pressure seen when the animal is motionless with curare, but also after destruction of the vaso-motor centres in the medulla oblongata. Loewi in oncometrical experiments on the intestines failed to obtain any evidences of the contraction of these vessels with caffeine and believes that the rise of blood-pressure is purely cardiac. Experimenting on the isolated mammal heart, Bock found that though there was a continual increase in the rate of the pulse in the majority of the experiments the pressure exerted in the rate of the pulse in the medulla oblongata and the heart. The slowing of the pulse occasionally seen in the first stages of the poison Reichert attributes, with probable correctness, to a primary stimulation of these cardio-inhibitory centres; the alteration of the pulse, which sometimes occurs in advanced poisoning he believes to be due to a direct action of the drug upon the heart. Bock believes that the frequency of the pulse usually produced by caffeine is the outcome of powerful stimulation of the cardiac accelerator apparatus, and that the inhibitory apparatus is not depressed, basing the latter belief on the fact that he has observed that section of the vagi in the poisoned animal still further increases the rapidity of the pulse whose rate is already much above the normal.

DIURETIC ACTION.—In poisoning by caffeine great increase in the secretion of urine is a common symptom, and the statement of Gubler that the alkaloid is one of our most powerful and certain diuretics, has received abundant confirmation. The effect of the drug upon healthy men would indicate that it does not act simply by regulating the circulation of the kidney, but has also a distinct effect upon the renal organ itself.

That caffeine acts directly upon the kidneys was proved by W. von Schroder and by A. Langgaard, who separately found that when a cannula was inserted into the ureters

in an animal whose vaso-motor system was completely paralyzed by chloral injections of caffeine into the circulation caused a very increase in the urinary secretion. Langgaard found that usually before the great increase of diuresis the urinary secretion was arrested for several minutes. This is in exact accord with the experiments of C. D. T. Phillips made with Roy's oncometer. It was found that immediately after the injection of a small dose of caffeine, when the blood-pressure was either slightly depressed, elevated, or unaffected, the kidney underwent a very distinct contraction of its volume, which lasted for two or even three minutes and was accompanied by great lessening or arrest of the urinary secretion. After the contraction, the kidney rapidly expanded beyond its original bulk, and at the same time the urinary secretion became excessive. Loewi found that caffeine is capable of dilating the blood vessels after division of the renal nerves and believes that the increased activity of the kidneys depends upon vascular dilation. These facts do not prove, however, that the diuresis is caused by the increased flow of blood to the kidneys. It is more probable that the dilatation of the vessels is the result, rather than the cause, of the increased secretion. Because the secretion from the uninjured kidney was increased much more than from the kidney whose nerves were destroyed, Schroder believes that the drug increases diuresis by acting both upon the nerve-centres and upon the secreting structure of the kidney. To our thinking, however, the direct injury to the secreting apparatus of the kidney by division of the renal nerves is sufficient to account for the difference between the influence of the alkaloid upon the normal and the operated-upon kidney, without necessitating the theory of a twofold action. Schroder found that there was an increase not only of the liquid, but also of the solids of the urine. Anten believes that caffeine increases an inhibitory influence of the pneumogastric nerve on the kidney, thereby interfering with its non-excretive influence, a theory which seems to us extremely doubtful.

TEMEERATORE.—We know of no recorded temperature curves of caffeine-poisoning in man. It is probable, however, that the effect of the alkaloid is precisely what it is in other mammals. Binz states that in animals minute doses have no effect upon the bodily temperature; doses just enough to produce slight toxic symptoms cause a rise of 0.6 degrees C.; excessive doses cause an elevation of 1 degree to 1.5 degrees, C., the maximum being reached in one to two hours; doses which rapidly kill have very

little effect upon the temperature.

GENERAL NUTRITION.—The enormous use made by mankind of substances containing caffeine indicates that in some way it is directly of service in the wear and tear of daily life. The experimental evidence, however, although not conclusive, does not point towards any marked effect of the drug on metabolism.

This subject was laboriously investigated by Julius Lehmann in 1853, and by F. W. Bocker in 1854, and earlier. Lehmann found that the exhibition of six grains of caffeine daily, the regulated diet being uniform, diminished the elimination of urea from twelve to twenty per cent. Upon experimenting with the empyreumatic oil of coffee he found that it lessened even to a proportionately greater extent the elimination of urea, and also acted very powerfully in producing sleeplessness, so that the favorite beverage is by no means dependent upon its contained caffeine for all of its activity. Bocker published his first researches on coffee in 1849, but we have never seen any abstract of the article, other than the statement that he found that the drug causes diminished elimination of urea. His investigation of the effect of tea was most elaborate and laborious. He analyzed the feces, the urine, and the products of respiration, and found a similar diet being maintained, that tea did not effect sensibly the elimination of carbonic acid from the lungs, but did very decidedly diminish the excretion of urea, and also of nitrogenous matters in the feces. He then tried abstaining from food for periods of thirty-six hours, with and without the use of tea, with results perfectly in accord with those just stated. The results obtained by other experimenters are, however, singularly discordant. Henry Hoppe found that, in the dog, coffee diminishes very slightly the urea-elimination, but greatly increases the output of carbonic acid. In regard to urea, Rabuteau and his pupil Eurastratiade, working with coffee upon men and dogs, obtained results similar to those of Bocker, as did also Hammond in this country. On the other hand, C. G. Lehmann, Voit, and Roux found that caffeine or coffee sensibly increases the elimination of urea, or in those accustomed to the daily use of coffee has no influence. In a long series of experiments upon dogs by Couty, Guimaraes, and Niobey, it is affirmed as a uniform result that the use and assimilation of nitrogenous food were greatly increased, that the carbonic acid and oxygen in the blood were markedly decreased, and that the proportion of sugar and of urea in the blood was notably increased.

In the fact of so much contradiction it is perhaps wisets

to reserve opinion, but it does seem as though the present evidence warranted the conclusion reached by E. Dorisot that the action of caffeine upon urea-elimination and upon protoplasmic change is inconsistent, and not direct and pronounced. It is true that in a long series of very elaborate calorimetrical experiments performed by E. T. Reichert it seems to have been proved that caffeine increases the heat production as well as the heat dissipation, and that of these phenomena, the increase of the heat-production is probably primary. This result is in accord with that of Wilhelm Heerlein, who found marked increase in the consumption of oxygen and formation of carbonic acid produced under the influence of caffeine. Nevertheless, the united results, if their accuracy be accepted, do not show that destructive metamorphosis of nitrogenous tissue is increased by caffeine, but only that there is an increased destruction of carbohydrates.

SUMMARY.—Caffeine is a powerful stimulant to those cells of the cerebral cortex which are functionally connected with consciousness and intellectual action. It is also mildly stimulating to the respiratory centres and probably to the motor cells of the spinal cord, but seems to be without action upon the nerve-trunks. It is a powerful muscle-poison, at first producing a condition in which there is exaggerated muscular excitability, with a tendency to tetanic contractions upon momentary stimulation, and afterwards a stage of stiffness, weakness, and finally, lost excitability. It is a mild stimulant to the circulation; probably by virtue of its relation to the muscle-fibres it increases the cardiac force and perhaps also directly contracts the arterioles. In overdose it depresses the circulation, probably acting both upon the heart and the blood vessels. It is absorbed with rapidity, and is to some extent decomposed in the body, and at least in part, eliminated through the kidneys, upon whose secreting structure it exerts a marked stimulating influence. Although the evidence is contradictory, it is not at present writing probable that caffeine has any distinct specific influence upon protoplasmic nutrition, but it does appear to directly increase the production of carbonic acid and of animal heat."

DR. WALTER S. HAINES,

the next witness called on behalf of the Claimant and Intervenor, The Coca Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Your full name?

A. Walter S. Haines.

Q. And your residence, Doctor?

A. I live in Chicago.

Q. What is your occupation, Doctor?

A. I am a teacher or professor in the Rush Medical College in Chicago and in the University of Chicago.

Q. How long have you been a teacher and professor?

A. I have been in Rush Medical College for the past thirty-five years and in the University of Chicago for the past ten years.

Q. What experience have you had in experimenting on animals with different substances?

A. I have experimented with a considerable number of lower animals with a variety of substances.

Q. Will you please state in a general way these experiments on animals, how they are carried on, the mode you carry them on? Just tell the jury.

A. A certain number of animals was selected which are all as nearly the same in size as we can get them, and in other conditions, as possible. These are divided into two groups, then, each group being as nearly of the same size and weight as the other group. Those two groups of animals should be kept side by side under identical conditions, the same light, air and food and all other conditions should be identical.

In one of these sets of animals the substance the effects of which we are testing is given, and that set is called the test animals and the other set that is given nothing, those are called the control animals. When I say we give nothing, I mean to say we do not give the substance the effects of which we are testing, but it is desirable in order that the same amount of impulse should be produced——it is desirable to give the control animal at the same time the same amount of pure water, we will say, so that any effects produced by the administration of the substance in question may be detected.

These two sets of animals should be treated, if possible, side by side, and at the same time, in order that there may be absolutely no difference, excepting only in the substance administered to the test animals.

A set of controls is indispensable, therefore, in order that we may reach conclusions as to the effect of the substance we are experimenting with on the test animals.

Q. Have you performed any experiments in regard to caffeine on the lower animals?

A. I have.

Q. I wish you would describe the nature of the test, how long the period was or went over, and what was done

to each of these animals, and where they were delivered to, if to anybody.

A. A year ago this past January, that is to say, in January, 1910, I secured a number of guinea pigs. I selected from the guinea pigs two sets, one a set of control animals and the other a set of test animals. The control animals to receive no caffeine and the test animals to receive that substance. I had seven animals in each group, seven tests and seven controls.

There were in each group the same number of males and females. That is to say, there were four females in the test set and four females in the control set, and there were three males in the test set and three males in the control set. The two sets were weighed at the beginning of the test and the same amount—they weighed practically, both fifty ounces—that it, the seven animals taken together in the test set weighed fifty ounces and the seven animals together in the control set also weighed fifty ounces.

The animals were all of about the same size. There were slight variations in weight but it was immaterial; each animal weighed on an average in each set about seven ounces. These animals, the two sets, were placed in two cages that were side by side. In fact, it was a large cage with a partitition in the center, a wire screen running down through the center, to separate them completely, but they were side by side and therefore had the same exposure of air, sunlight and other conditions.

Each set was fed regularly, each day with the same food and the same amount—the food was weighed and each set received exactly the same amount as the other set, and the food of each set was taken from the same source of supply.

The materials fed them were carrots and oats. The carrots were taken for the test set and for the control set from the same bag, the same carrots being used for both. The oats were taken out of the same bin. Each received the same carrots and the same oats in the same weighed amount.

During the summer of last year it was impossible occasionally to get carrots, then I was obliged to give the animals freshly cut grass, but each set received the same amount of freshly cut grass as the other did. The grass was weighed for each set.

The test set were given caffeine. The control set was not given caffeine. The caffeine was administered to the test set by dissolving it in water and letting this solution drop into the mouth of the animals. The animal was

taken up and put on its back and the mouth gently opened and the solution of caffeine dropped in and the animal swallowed it. In order that an equal amount of material should be given to the control set, they received at the same time the same amount of pure water. They were also, each one, put on its back and the mouth opened and the same amount of water dropped into the mouth and the water swallowed. So that each control received the same treatment as did the test, the only difference between them was that the tests were given caffeine while the controls were not.

This test was commenced on the 22nd of January a year ago. The animals receiving caffeine each got 1/30 of a grain each day. The weight of the animals was noted. This was calculated to represent ten grains of caffeine to a man weighing 150 pounds. The dose of caffeine was given in the morning before they were fed, and it was all given at once, the object of this being to give the caffeine on what is commonly called an empty stomach, and it was all given at once so as to produce the full effect of the substance, if any effect was produced. They were therefore given the dose in the morning and in the morning before feeding, and the entire dose was given at once. After the first day, I noticed that the animals receiving this quantity of caffeine were restless and I watched them the next day and found they were more restless. It was perfectly clear that the animals taking the caffeine were more restless than the animals that did not receive the caeffine. I came to the conclusion from the effects on them that I was giving them more than was necessary to secure the data that I was seeking, and I therefore reduced the quantity on the 27th of January, to 1/60 of a grain, that is the quantity corresponding to five grains administered to a man weighing about 150 pounds. From that time, no irritability of the animals was shown; as the animals increased in weight, the dose of caffeine was increased. I ought to have stated at the start that all the animals were young animals, they were all animals about between one-third and one-half grown. They were animals approximately from six weeks to two months old. They were young animals. They therefore grew in size naturally, and as they grew in size, the amount of caffeine given to them was increased.

On February 14th, the amount was increased to 1/45 of a grain and on February 28th to 1/30 of a grain and on April 5th, it was increased to 1/15 of a grain. By this time the animals had gained in weight very considerably so that this 1/15 of a grain calculated to a man

weighing 150 pounds, would be ten grains, that is the 1/15 of a grain given to animals of that weight correspond to ten grains given to a man weighing 150 pounds. The caffeine was kept in this quantity and then gradually increased to September of last year when each animal of the test set was receiving 1/4 of a grain of caffeine. Considering their weight, this was equivalent to 25 grains of caffeine to a man weighing 150 pounds. During this period I watched the animals carefully, the test set and the parallel set, and I could see no difference between them in their actions that was especially noticable, and they appeared practically the same. They both ate their food well, both sets were seemingly normal natural animals. The experiment, with certain exceptions that I shall speak of presently, went on until the 24th day of January of this year, that is to say, the experiment was conducted over a period of one year and two days.

Going back for a moment, I should say that during this year, animals of both test and the control set were killed from time to time in order to determine what, if any, changes had taken place in their bodies under the influence of caffeine.

On the 24th of May, that is to say four months and two days after the test was started, two animals of each set were killed, two test animals and two control animals.

On July 6th, five months and fourteen days after the test was commenced, one animal of each set was killed.

On August 6th, that is six months and fourteen days after the test began, another animal of each set was killed.

I had intended keeping all the rest of the animals, three in number in each set until the conclusion of the experiment, but on the 3rd of November one of the control animals died and the control animal having died, I though best to kill one of the test animals so as to have the same number in both sets. Therefore, a test animal was killed shortly afterwards and the animals, therefore, in each set was reduced to two, two test animals and two control animals.

These four animals, two of which caffeine had been given and two to which distilled water had been given were continued until the close of the experiment, January 24th, or twelve months and two days from the beginning of the experiment.

The animals were killed in all cases by the use of chloroform and immediately after killing them, the bodies of the animals were taken by me to the laboratory of my colleague, Doctor E. R. LeCount, and I watched him make

the post mortem examination on each of them. I carried the animals to him immediately so that they were within his hands within five minutes, it not sooner, after they had been killed.

The animals of both sets were weighed at frequent intervals. They were weighed chiefly as a set, the caffeine set by itself and the control set by itself, being separately.

There was fluctuation of weight in both sets up and down. There was on the whole a steady progressive increase in weight of both sets, but there was some fluctuation.

Taking all the weighings of both sets and averaging them, I find that the test animals on an average weighed each 21.5 ounces. Taking all the weighings of the controls and averaging them up, I find that they weighed 20.7 ounces, therefore, the average of all the weighings was slightly in favor of the test animals. They weighed a very little more than the controls, a difference of .8 of an ounce; four-fifths of an ounce for each animal on an average is not large enough to draw any conclusion from if this experiment alone is considered. If other experimenters reached the same result with other animals, it would then be significant, but standing by itself alone, I do not attach any material importance to the fact that the caffeine animals gained slightly more in weight than the control animals.

Q. What is the duration of a guinea pig's life as compared with that of a man?

A. Their average life is about two or three years.

Q. The period which you fed them represented from one-half to one-third of a guinea pigs' life?

A. Yes, sir.

CROSS-EXAMINATION.

BY MR. MILLER:

Q. You are a toxicologist and have written a book on toxicology?

A. Yes, sir.

Q. Were those control animals kept under your own eye, or were you assisted by other persons in keeping your control and test sets of animals?

A. They were kept under my own eye. I had an assistant who helped me in the work, but I weighed out the food myself and I gave it to them myself and I conducted the experiment myself with the aid of an assistant, who is necessary in conducting an experiment of this sort.

Q. One must have assistants or you could not discharge

your other duties without having someone else to assist you.

A. It would have been difficult to do it. I had my other work, and it would have been difficult to do it without assistants, but I weighed the food and I fed the animals.

Q. You were engaged as a teacher part of the time?

A. Yes, sir; I had my lecture courses in the college and university.

Q. You were more or less away from the place where the animals were kept during a portion of the time?

A. Yes, sir. The animals, I may say, were kept under lock and key. Each cage was locked up and I had the key with me.

Q. By cage you mean an arrangement or iron bars through which food could be inserted if the attendants had desired to insert it?

A. It was made of wire cloth, I might call it, of large mesh.

Q. So that if the attendant had desired to insert food through there, such things were possible but you don't think he did it because he was reliable?

A. Yes, it could have been done if a person had wished to be dishonest about it.

A. The analysis that was made was the analysis that was testified to by Doctor Le Count?

A. No, sir; Doctor Le Count has not testified regarding those animals yet.

Q. He has not testified about this?

A. Not at all, no sir.

Q. Then the only examination so far was made by Doctor Le Count?

A. So far as I know, the only examination made by him. I was present when he made the postmortem examination but I was not present when he made the microscopical examination.

(Witness Excused.)

DR. E. R. LE COUNT,

recalled to the stand for further examination, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. You heard the testimony just given by Professor Haines?

A. Yes, sir.

Q. I wish you would explain to the Court in detail what you did with those animals that were turned over to you as Professor Haines stated they were turned over to you.

A. They were examined in the way in which post mortem examinations are usually made upon the bodies of animals subjected to such experiments. The post mortem examination began with an incision in the median line of the abdominal surface. Then I proceded to examine all the organs of the animal's body, and the brain. For example, I examined the lungs, the heart, the spleen, the thyroid gland, the salivary gland, liver, pancrets, stomach, alimentary canal, kidneys, suprarenal and the generative organs and the bone marrow in some instances was examined, with first the unaided eye and sometimes the use of a small hand lens which would magnify just a few diameters, and then from the important organs, portions were taken for microscopical examination.

Q. Did you examine each organ microscopically as well as microscopically?

A. I would not be sure in the case of every organ, but in the case of every animal, all of the important organs were examined microscopically.

Q. Did you find any difference between the animals presented to you?

A. No, sir.

Q. No change whatsoever and no difference between what were known as the control and test animals?

A. The animal that died spontaneously, the control animal, that animal was found to have an infectious disease with an organism, and this bacteria or germ was found present in a great many places in the body, and it is believed or we concluded that the animal died from an infection. That was a control animal. Then in the case of one of the control animals and in the case of a test animal, both killed at the same time, there were found very minute changes microscopically demonstrable only in the kidneys. These changes were found, as I have stated, both in a test animal and in a control animal. They were two animals that were killed, I believe, some time in January of this year, after they had been kept under observation for a year.

Q. Did you examine the brain and spinal column?

A. Yes, sir.

Q. Did you find any evidence of chromotolysi?

A. I did not.

Q. Can chromotolysi be discovered without a microscopical examination?

A. No, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You did not make any test of the urine of those

animals, if I understand you?

A. No, sir.

(Witness Excused.)

Mr. Sizer: Referring to the Schmiedeberg, we have a typewritten translation of it, if your Honor wants to see it.

The Court: Let Mr. Miller have it before submitting it to me.

Mr. Hirsch: We will have copies made and submit them to both.

DR. SAMUEL P. SADTLER,

the next witness called on behalf of the claimant and intervenor, The Coca Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Will you give your residence and occupation?

A. I live in Philadelphia and I am a chemist.

Q. State generally your qualifications as a chemist.

A. I am a graduate of Harvard University, having taken my scientific degree in the Lawrence Scientific School in 1870. I went to Germany and made my Doctor's degree at the University of Goettingen, and I returned here in the fall of 1871 and since that time been engaged in the teaching of chemistry. I have had a number of teaching positions. I have been a teacher of chemistry in Philadelphia since 1874 and for 17 years I was Professor of Organic and Industrial Chemistry in the University of Pennsylvania and resigned from that institution in 1891 to go into practice as consulting chemist, but at the same time, I have held another position as Professor of Chemistry in the Philadelphia College of Pharmacy now for 33 years and I still hold that position.

Q. Have you made analysis of Coca Cola syrup, and if so, where did you obtain the sample and give the result of the analysis.

A. I had two samples sent to me from Chattanooga, one of the fountain syrup and one of the bottler's syrup and the latter sample was from G. T. Hunter, and it recites that one bottle was taken out shipped by J. F. Johnson and that is the bottler's syrup; and the fountain syrup was taken out and shipped by W. H. Foster. I have the original containers with the names of those parties upon them.

Q. What was the result of your examination?

A. The result was the finding of .20 of one per cent. of caffeine in the one and .19 in the other. In the foun-

tain syrup—I should have said .21 of one per cent. which amounts to 1.2 grains per fluid ounce. In the bottler's syrup, I found .20 of one per cent which amounts to 1.18 grains per fluid ounce. Those are the caffeine contents.

Q. Have you seen Merchandise No. 5 manufactured?

A. I have.

Q. When and where?

A. I visited Maywood, New Jersey, and witnessed the manufacture of it.

Q. Did you make any analysis of the preparation known as No. 5, and if so, what was the result?

A. I made an analysis of No. 5 also, and found it to be free from cocaine. I found it to contain definite quantities of caffeine and a small amount of theobromine, and I found it to give certain reactions indicating tannin.

Q. Have you made any attempt to establish in your mind the presence of No. 5 in Coca-Cola syrup or the sample furnished you for analysis?

A. Yes, sir. I carried through experiments of that sort and have made experiments to recognize the several constituents of No. 5, that is the cola extracted matter including tannin, and the tannin of the cola nut.

Q. What else?

A. The coca leaf extracted matter and the cola extracted matter.

Q. What is the experiment you made to determine the presence of the coca leaf and cola nut?

A. I carried through first, experiments on some of the No. 5 solution with reference to ascertaining whether the coca extractive matter was present there. It was carried through parallel, through two experiments, one No. 5 and the other with an alcohol extract I made from the decocainized leaf. I carried the parallels to study the analogy of the reactions, and after getting what would be an eqeous infusion, because I made perfect extractions with chloroform, both acid and alkaline solutions and rejected them because they would combine the alkaloidal and I found that with No. 5 the reactions perfect, responsive in regard to coloration and precipitant with the extract made directly from the coca leaf and with No. 5 extract which was furnished me. Then besides, I might say after I had eliminated all the alcohol alkaloid by chloroform extraction, the neutral eqeous solution had a very distinct odor of coca leaf which was recognizable. Then the resinous extractive matter was tested in a variety of other ways. That was equally solvent in solvents and gave no coloration with strong sulphuric acid, and in that way, I was satisfied I had the same material from the leaf and from

the No. 5.

Q. You say you found a trace of theobromine in No. 5?

A. Yes, sir.

Q. How was that obtained?

The Court: We will now adjourn for recess.

(Thereupon the Court, at 12 o'clock noon, adjourned until 12:20 o'clock P. M.)

AFTER RECESS.

Court met pursuant to recess at 12:20 o'clock p. m.

S. P. SADTLER,

resumed the stand for further examination.

BY. MR. HIRSCH:

Q. What was the last question—I believe though you have not got it (addressing the stenographer) I believe it was in regard to there being a trace of theobromine coming from—

A. (Interrupting) Theobromine which I found in the analysis of No 5 from the kola nut.

Q. Doctor, do you know whether there is any tannin and if so what per cent in California white wine?

A. California white wine is of course a different thing from California red wine, just as white wine is different because there is an entirely different process in the manufacture, and white wine contains much less than the other —that is shown by the United States Pharmacopœia which states the test for white wine and the tannin which is contained in white wine —

Mr. Miller: I would like to have the pages.

Mr. Hirsch: Where is that found?

The Witness: I can point it out in one of the dispensatories—I have not got the pharmacopœia here.

Mr. Miller: I desire to have my attention specifically directed to the page.

The Witness: If anybody has a pharmacopœia here I can point it out.

The Court: Have you a copy here?

Mr. Hirsch: Here is the dispensatory, it is quotation from the pharmacopœia.

The Court: Well that may be handed to the witness.

The Witness: All right, sir.

The Court: I do not know whether Dr. Schaefer said he used a white wine or a black wine. I understood him to state a California wine.

Mr. Miller: That is all he said—a California wine—

The Court: Do you agree it is a white wine?

Mr. Miller: I do not agree to that.

BY. MR. HIRSCH:

Q. Dr. Sadtler did you see the process by which No. 5 was manufactured?

A. Yes, sir; I saw the wine that was used. He used white wine.

Mr. Miller: My point in that connection is that the Doctor stated he used which ever was the cheapest on the market.

Mr. Hirsch: That was between alcohol and California wine.

Mr. Miller: I respectfully submit until they show which of these particular wines he bought, evidence on this point would be incompetent—

The Court: I don't think he said as between different kinds of wine he bought the cheapest; his attention was not directed to that. He said as between California wine and alcohol he bought the cheapest. He never did state as I remember what kind of wine. I remember thinking there were different kinds of California wine—I think they have sufficiently shown for the purpose of it going to the jury that it was white wine and not red wine— and it is a question of weight—as to whether the jury is of the opinion they have made it out sufficiently.

Mr. Hirsch: We will have to recall Dr. Schaeffer from Maywood to prove it.

The Court: Proceed.

The Witness: I find it on page 1707 of the National Standard Dispensatory and quoted from the United States Pharmacopœia, giving the official tests for white wine and in those tests I find as follows: for 10 c. c. of white wine—

The Court: I don't think counsel asked for it to be read.

Mr. Miller: No, I just wanted the reference.

Mr. Hirsch: Just the reference doctor.

The Witness: Read that about tannin?

Mr. Hirsch: No, give the page.

The Witness: On page 1707 of the National Standard Dispensatory, the test for tannin.

BY MR. HIRSCH:

Q. Have you made any tests to ascertain the amount of caffeine in cocoa and plain chocolate?

A. Yes.

Q. What were the results of your test?

A. I have anaylzed plain chocolate—Walter Baker's cocoa and Walter Baker's plain chocolate and separate from theobromine, the caffeine I find —

Mr. Miller: (Interrupting) I object unless he knows

about the composition of these things as originally made up by the manufacture—I submit his test in that respect would be incompetent evidence—he is not sufficiently acquainted with the matter under consideration—he says he took a certain mixture—unless he knows what the manufacture puts in it, it is not competent—it is too remote.

The Court: I understand the reason for which it is offered is to show the effect of cocoa as consumed by people using it. In so far as that may have any bearing—the question is as cocoa is manufactured and sold to the concumer—the process is not material. The very thing he is trying to get at is the cocoa sold on the market, that is what he is trying to do. It appears there are certain other ingredients in cocoa besides caffeine and before I let that cocoa matter in I want to know from somebody the amount of caffeine in a cup of cocoa—if that is shown—

Mr. Miller: (Interrupting) My point was just this—that unless this witness knew what was put in there he cannot speak—he couldn't speak from what he was told by the manufacturer.

The Court: As I understand from the doctor he bought a sample of Baker's chocolate and cocoa on the market.

The Witness: Yes, sir.

The Court: And analyzed it as ordinarily sold without any statement from the manufacturer as to what it contained.

Mr. Miller: I submit that if he buys a thing with a label on saying it is so and so without showing whether he has analyzed it —

The Court: He proposes to show he has analyzed it, and what it contains.

Mr. Miller: He does not undertake to say what the manufacturer puts in it when he manufactures it.

The Court: It seems to me it is utterly immaterial about that—the question is what is in it when it is sold to the consumer; to determine the effects of caffeine on the consumer—the question of how it got in there is not material.

Mr. Miller: I submit that two wrongs don't make a right.

The Court: I do not understand Mr. Miller that the use of coffee or tea or cocoa is offered as justification, but that it is offered for the purpose of showing the world uses it, and is not hurt by it. They are offering this for the purpose of showing and I gather that by inference—that caffeine is not injurious to the human race, for they say it is used by the human race—coffee, tea and cocoa, without injury. I have allowed the tea and coffee matters

to be gone into because they appeared to be near enough in proportion of caffeine to make the matter one of some relevancy but I will not allow them to go into cocoa unless that also appears, and I have to pass on that preliminary question after I find out from somebody about how much caffeine there is in there—if there is very little caffeine—one fifth of a grain or something of that sort, I think it would be too remote. If it appears there is approximately a grain or so of caffeine in a cup of cocoa, a grain to a grain and a half, I will admit it.

BY. MR. HIRSCH:

Q. Proceed doctor?

A. I purchased a sample of Walter Baker's cocoa and plain chocolate. I analyzed them by the use of the methods of the National Agricultural Chemists Pamphlets provisional methods for the analysis of these materials. I find two-tenths of one per cent of pure caffeine in the breakfast cocoa and seven-one-hundredths of one per cent in the plain chocolate.

BY THE COURT:

Q. And how much would you figure that would be in the average glass or cup taken?

A. That depends entirely on how many ounces of cocoa powder is taken to make a cup of chocolate. I think it ranges from 7½ to ten grams—when I said ounces I should have said that—the weight necessary for a cup of chocolate to make—well I would say that a cup of breakfast cocoa would be about one-third that contained in a fluid ounce of the coca-cola syrup.

Q. And how much in the chocolate?

A. Well, in chocolate I couldn't say; it depends entirely upon how it is made up for a drink but I know how much would be used in a cup of —

The Court: It is therefore excluded—I exclude the cocoa matter for it also has been shown there are other active principles in the cocoa that might neutralize the caffeine, and the whole thing would be going into unnecessary complications, so far foreign as not to afford any just test and I exclude it.

Mr. Sizer: Your Honor, the testimony is not altogether as to caffeine because cocoa and chocolate have theobromine which is a closely allied chemical in its physiological effects—

The Court: But as I said with reference to the application of caffeine to the muscles, it is getting us pretty far afield, and there may be differences that chemists do not understand as yet, and I do not think I will complicate this

case by allowing it to go in.

Mr. Sizer: Very well, you may cross examine him.

CROSS-EXAMINATION.

BY MR. MILLER:

Q. Doctor, did you make a test of coca-cola syrup prior to the one that you have detailed in response to adversary counsel?

A. I had analyzed coca-cola syrup in 1907.

Q. And you found practically the same ingredients?

A. I found the same ingredients, slightly different in amount but within very narrow limits.

Q. Now, I will ask you if you wrote a letter to the Coca-Cola Company in response to their request, or of your own volition, about 8th October 1907, addressed to the Coca-Cola Company, Philadelphia Branch, based on that analysis?

A. I reported that analysis to the Philadelphia agency of the Coca-Cola Company.

Q. I pass you what purports to be a copy of that analysis and ask you if you recognize it as being correct report that you made at that time?

A. I think it is correct as far as I can see.

Q. Now, in that report, which was made, you reported that there was no tannic acid, didn't you?

A. I say that.

Q. Now, in this compilation that you assisted in preparing you stated that tannin was a synonium for tannic acid?

A. Yes, sir.

Q. So that in 1907 on October 8th you found no tannin in your analysis of coca-cola syrup?

A. I overlooked it then; I have found it since.

Q. Well, did you overlook it then or has it been changed since then?

A. I probably overlooked it.

Q. Well, I ask you now, did you or not do as your statement stated, that you purchased in the open market that product and made a careful analysis of it, and that you found no tannic acid?

A. I stated that.

Q. Now then I ask you whether or not you overlooked it?

A. I think I did.

Q. You think you did?

A. Yes, sir.

Q. Why do you think you overlooked it then?

A. Because I have since found it present, proving it is

present in every sample of coca-cola syrup I have examined since.

Q. Now, isnt that proof of the fact that the formula has been changed since October 8th 1907?

The Court: That is a matter for the jury.

BY MR. MILLER:

Q. And you reported at that time that you found no caramel coloring?

A. Yes, sir

Q. And that was based on a careful analysis?

A. That was based on tests for caromel which I have carried out since. They are in there or not in there distinctively—I have got the test by Crampton's method—

Q. (Interrupting) Now, you closed that opinion with the statement "At the same time coca-cola is entirely free from tannic acid" didn't you?

A. I suppose I did if it is there.

Q. Well, I ask you?

A. I believe that is substantially correct as I wrote it.

Q. And by tannic acid in these decoctions you meant of course "coca" and "cola?"

A. Yes, sir.

Q. Now, you say that since that time you have made certain tests and ground certain derivatives of certain tannin?

A. I do. That was found in—

Q. That was found in merchandise No. 5?

A. And in the finished product both, I found the tannin.

Q. What is the difference, doctor, between the tannin that is found in coca and the tannin that is found in cola?

A. They give slightly different reactions but there is no difference distinct enough to enable one to state in any fullness what was the difference; it is impossible to establish any difference in the formula, and I carried through careful tests on the decoction made from the leaves and the decoction made from the ground nut, I say there is a slight difference.

Q. And yet you are unable to tell what they are?

A. I am able to tell what they are; I carried them out.

Q. Then tell us what they are please?

Mr. Sizer: Are you going to offer that letter in evidence.

The Witness: I have asked him only about certain statements in the letter.

The Witness: I have made aqueous infusions from the

decocainized leaves.

BY MR. MILLER:

Q. Well at that point, hot or cold?

A. Boiled with water, with boiling water in each case.

Q. I will ask you to give the details fully?

A. Aqueous solution made from ten grams of decocainized leaves, using 100 c. c. of water and set for half an hour and filtered, and that was the method used for preparing the first infusion. The other was exactly the same, used ten grams of cola nut and 100 c. c. boiled, and set aside and then filtered. In carrying out that with a variety of re-agents I found a slight difference —

Q. (Interrupting) What re-agents did you use doctor?

A. First that of lead acetate, with a solution of lead acetate. In the case of the coca-cola tannin I got an evident flocoulent precipitated of a yellowish color, and the supernatant alkaloid remained green. Used the same reagent with infusion from the cola nuts and I got a flocculent precipitate of somewhat yellowish red color, and a supernatant alkaloid that is colorless.

Q. Now these decoctions, what were they, different infusions entirely, one of the coca and the other of the cola?

A. Yes, taken separately.

Q. Now, proceed.

A. One per cent solution, a slight turbidity with the cola nut infusion—no turbidity with precipitate with cynconine sulphate 1½ per cent solution, and slight precipitate in both cases with ferri chloride.

Q. And that means what, that is some sort of iron, tell what it is?

A. Ferri chloride is a chloride of iron in which the iron is in the higher state—ferrichloride is a recognized reagent for tannin. That ferrichloride infusion from the coca leaves gives an olive green color, which is a strong precipitate; with the cola tannin or the infusion from the cola nuts, a greenish red color —

Q. Is that as far as you went?

A. No, one more with ammoniacal cynide of potassium —a brown color in the case of the cola infusion and a reddish brownish color in the case of the cola nut infusion.

Q. Now, did you make any experiment of that kind with respect to tannin in the California wine?

A. I tried the reaction ferrichloride which is the most distinctive reagent with California wine.

Q. Up to this ferri-chloride test there are very many tannins which give the same response?

A. Well I have no difference in the ferrichloride reaction between these two used, and I will give you the

reaction of white wine.

Q. Are there very many tannins which give the came reaction or response up to the ferrichloride test?

A. You mean with the ferrichloride test?

Q Yes, I mean up to that point?

A. There were slight distinctions, I noted all the way through.

Q. But are there not very many tannins that are found in the leaves of various plants that up to that point give the common precipitation or test?

A. I couldn't say from positive knowledge because I have not made sufficient laboratory investigations of those.

Q. Are there very many that give the same response when the ferrichloride tests are applied?

A. Yes, sir, there are analogous and similarities in behaviors of various tannins. Certain tannins give green color and certain tannins give deep blue color.

Q. Now after that, after you pass that ferrichloride test I ask you if there is a difference, if any of you noted, with the tannin of California wine and the tannin of the coca-cola?

A. Coca-cola gives the most intense coloration I have found in these examinations, gives a deep oliver color.

Q. What does California wine give?

A. A slight turbidity which gives the effect of a smoked color appearance; no green shade persistant in it at all.

Q. What does coca infusions give?

A. With me what I call a rather redish tint of green; if I remember correctly, a greenish red I would call it is; it is a distinctively different tannin.

Q. Which kind of California wine did you use in making that test?

A. Some of the white California wine brought from Maywood and which I saw taken from the stock there.

Q. Did you ever make any test to ascertain what would be the reaction in a combined test of wine, that is California wine, coca and cola tannins?

A. Not by putting them together in that way. I have gotten the resultant ferrichloride reaction with No. 5 and with the finished product or syrup.

Q. Did you note that in No. 5 and in the finished syrup there is used, there is found rather, as your most recent analysis show a tannin of the California wine, of the cola and of the coca in combination?

A. I have identified the presence of cola and the presence of coca by the tannin but not the California wine.

Q. You know there is a percentage of tannin in California wine?

A. I say it is a trace.

Q. That means that you can detect it—

A. It produces a slight turbidity—there are figures on California wine, giving the tannin in Leach's book on Investigation—I would like to have that referred to if you choose—the amount of tannin contained in white California wine is less than 1/10th of one per cent.

Q. On the other hand the amount or percentage of their wine is practically two per cent?

A. You mean in red wine?

Q. Yes?

A. Probably it rises sometimes to two per cent.

Q. And by that you mean extractive matter?

A. Well, I suppose that would cover evtractive matter as well as tannin—as well as tannin I say; in that high percentage the analysis quoted in Leach for read wine of California, the figures are not as high as two per cent.

Q. The tannin is not the extractive matter is it?

A. Tannin may be called extractive matter in making up the summary—if you can't separate it, it is a part of the extractive—

Q. Isn't it true that the total extractive matter in the red wine is in excess of two per cent?

A. I don't know about that.

Q. What do you know about white wine, what is the total extractive matter there?

A. I will have to refer to Leach's book; I can give you the figures from that.

Q. Do you know of your own knowledge? Have you made any experiments to determine what that is?

A. I have not determined the percentage of California wine in either case myself.

Q. What is the percentage of tannin in coca-cola?

A. I don't know.

Q. What is the percentage of tannin in coca?

A. I don't know.

Q. What is the percentage of tannin in either the white or red California wine?

A. I could give it by quotation of the table of analysis; I don't know of my own personal knowledge.

Q. What effect does the concentration of aqueous tannin have on the behavior of the reagents that precipitate the tannins?

A. Well, in many cases in strong solution, in so-called tannin solutions used for leather making there is quite an amount of soluble—

Q. (Interrupting) I am not talking about those strong enough to tan leather, but those found in coca-cola what

is the effect of these reagents that you find in that case?

A. I do not think that the dilute soutions that were obtained in these infusions result in any decomposition of tannin.

Q. Doctor, is there also a method of isolating one tannin from another tannin in merchandise No. 5 or in the Coca Cola syrup, I mean to say assume that there is in there a tannin of the California wine, a tannin of cola and a tannin of coca?

A. Do you ask as to what I have done in the way of isolating?

Q. I ask you whether or not any method of isolating or separating the three?

A. No method as to making quantative separation, that I feel satisfied of being in the mixture; I have tried to identify tannin of each material in No. 5 by comparative tests.

Q. Well now, how much did you find of the California wine tannin in merchandise No. 5?

A. I did not find any in figures at all—and I got no test that would be to my mind sufficient to show there was any California wine tannin there.

Q. How much did you find of the cola tannin in there?

A. I have no figures at all.

Q. How much did you find of the coca tannin?

A. I said I had no figures on either of them.

Q. Of the total combination what did you find in percentage?

A. I didn't find the percentage of tannin—I merely got the qualitive reaction.

Q. Well now, if you were capable and I believe you are capable of doing that kind of work, and it is possible to do it, why didn't you determine the percentage of these tannins relatively or at least the whole?

A. For this simple reason: Both of these are vegetable materials—they are of very complex composition and even elminiating the coca leaves you have left after that a great deal of extractive matter, that is partly resinous and partly undertermined vegetable character, and only a part of it is tannin, and I do not know of any method by which you could extract the coca tannin in the pure state from the coca extractive matter, and the same would apply to the cola nut although the cola tannin has been extracted in more or less pure state from fresh cola nuts by Dr. Prescott, of Ann Arbor.

Q. Haven't all of these tannins been estimated and determined by scientific analysis—don't you know that as a matter of fact?

A. I do not know that; I don't think they have been.

Q. Do you know that that has been done at Ann Arbor, Michigan?

A. The cola tanning has been extracted from fresh cola nuts by Doctor Prescott, but whether it is chemically pure is a matter of doubt.

Q. Has not the percentage been determined and is not that the method for determining what cola the tannin has?

A. I don't know of any such method.

Q. What is the difference as to the cola content between the caffeine derived from coffee and that which is derived from tea?

A. The caffeine content?

Q. Yes.

A. The caffeine of tea is in larger amounts.

Q. I know, but I ask you when you come to the analysis of a sample like Coca-Cola syrup, can you tell from that product whether or not the caffeine therein came from coffee or tea?

A. No, sir.

Q. Did you separate the tannin in those different infusions that you had, or did you work with the entire decoction?

A. I worked with an aqueous decoction after it was filtered.

Q. What other matters were in there aside from the tannin?

A. Undoubtedly there are some extracted matters besides the tannin, but a good deal was filtered off.

Q. What method did you adopt as to the filtering process in filtering these tannins?

A. In filtering these tannins?

Q. Yes.

A. These infusions were simply filtered on a plain filter.

Q. That means the character of paper or strainer?

A. It means they were filtered on plain filtering paper as distinguished from a vacuum or any other kind of a filter.

RE-DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. In this report which you made in 1907, did you make any special test to ascertain the tannin?

A. I did not at that time. I got no evidence in the course of the analysis and I made no special test as there was no evidence of any notable quantity.

Q. Read the last paragraph of that letter and tell us

what the words "these decoctions" refer to.

A. The last sentence I see, bears somewhat a different meaning from that which I supposed it had. I said the same kinds of coca-cola, referring to the finished product, is entirely free from tannin acid in these decoctions. I got no astringency that was recognizable in the Coca-Cola, and I pronounced it free from this tannic acid in these decoctions.

Q. What decoctions?

A. That is in reference to the comparison with the tea above. I called attention to the distinction between Coca Cola and the astringency of tea and coffee. That is the obvious meaning of that last paragraph.

RE-CROSS EXAMINATION.

BY MR. MILLER:

Q. That means that you found no tannins at all in this decoction?

A. No, sir; they had no astringency.

Q. Could you tell us—I should have probably have asked this on my first cross-examination—what was the total tannin that you found in Merchandise No. 5?

A. I did not determine the tannin quantitatively.

Q. Can you tell us as to the total tannin that you found in Coca-Cola syrup?

A. No, sir.

The Court: He has said several times that he made no quantitative analysis of that.

Mr. Miller: I do not refer to any particular one but to all, did he determine the quantity.

The Court: He said no to that question several times.

BY MR. MILLER:

Q. Did you make your tests on the entire mixture or on the separated tannins that you refer to?

A. In which case?

Q. In any of the cases.

A. The comparison I was reading in detail was on two infusions made separately, one from decocainized coca leaves and the other infusion from the ground cola nut. Those were entirely distinct.

Q. Then, the Coca-Cola at first—that was made on that same plan too?

A. That has been made in the previous part of my work, and I got the same reaction in the Coca-Cola syrup and in No. 5 that I found in the case of the coca leaf infusion.

Q. How did you isolate the tannin from the Coca-Cola

syrup?

A. I did not isolate it.

Q. How did you get the colored reaction from the tannins in Coca-Cola syrup if you didn't isolate the tannins?

A. It is possible to get a color reaction without the isolation of it. It is very distinctive.

(Witness Excused.)

CHARLES H. RECKEFUS,

the next witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. SIZER:

Q. Where do you live?

A. Philadelphia, Pennslyvania.

Q. What is your profession?

A. Physician.

Q. How many years have you practiced as a physician?

A. Eighteen.

Q. I want you to state if you have had any experience with the use of Coca-Cola as a beverage?

A. I have since 1893. I have never drunk less than eleven months in the year since 1895 than six glasses and my wife has been drinking Coca--Cola since 1895 and I should say probably four glasses, and I have two children who have even taken it since they were three years of age.

Q. What effect has the use of the Coca-Cola had on your health—what was the comparative condition of health before taking and since?

A. When I began taking, I weighed 158 pounds and now I weigh 172. Whether that was due to Coca-Cola or other things, I am not prepared to say.

Q. Has the effect of Coca-Cola in any way affected your health or injured you in any way?

A. Not in the least.

Q. On the other hand, has it not been beneficial?

A. I think it has been very beneficial.

CROSS-EXAMINATION.

BY MR. MILLER:

Q. Your chlidren take it about like children, in moderate doses?

A. I must say I have no knowledge of any other children who take it. They take one or two glasses a day. We have it in the house and can have it if we want it.

(Witness excused.)

DR. F. K. BOLAND,

the next witness called on behalf of the claimant and in-

tervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.
BY MR. SIZER:

Q. State your place of residence and occupation.

A. I live in Atlanta; I am a practicing physician.

Q. How many years practice?

A. Eleven years.

Q. Did you assist Doctor Roberts and Doctor Paullin in making the examinations they testified about yesterday?

A. Yes, sir.

Q. In your practice in Atlanta and among your acquaintances, are you not thrown in contact with people who habitually use Coca Cola?

A. Yes, sir.

Q. Have you observed the effects of the use of it?

A. I have observed more an absence of effect than effect.

Q. Have you ever known of any case in which any disease or impairment of health, either mental or physical has resulted from the use of Coca Cola?

A. No, sir.

Q. Have you noticed the custom of children with respect to drinking Coca Cola?

A. I do not think I ever saw a child take Coca Cola more than one time in my life.

Q. Have you observed the children who go into soda water fountains and take a drink?

A. Yes, sir.

Q. You personally use Coca Cola or other caffeine-containing beverages?

A. Yes, sir.

Q. How much Coca Cola do you drink?

A. About one glass a day on an average, and about two cups of coffee daily.

Q. And have done that for how long?

A. I have been drinking Coca Cola since 1893, and drinking coffee ever since I can remember.

Q. Can you say from your observation of the use of it whether Coca Cola is a habit-forming drink?

A. I think not.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. How long have you been drinking Coca Cola?

A. I think since 1893. That is the first time I remember.

Q. You didn't have occasion to observe as to the con-

sumption of Coca Cola except that you pass casually in and out of drug stores?

A. No, sir.

Q. How old are you?

A. Thirty-six.

(Witness excused.)

DR. RAYMOND WALLACE,

the next witness called on behalf of the claimant and intervenor, The Coca Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. SIZER:

Q. What is your age and occupation and where do you reside?

A. Thirty-five years of age; reside in Chattanooga, practice medicine.

Q. How long have you been practicing in Chattanooga?

A. For eight and a half years.

Q. Is Coca Cola sold and consumed extensively in Chattanooga?

A. I should say that it is.

Q. Have you any occasion among your acquaintances and patients to observe the use of it?

A. Yes, sir.

Q. Have you ever known of any case of injury or impairment of physical or mental health resulting from the use of Coca Cola?

Mr. Miller: I object to that. He is not qualified to speak mentally.

The Court: Ask him a little fuller on that.

BY MR. SIZER:

Q. On the health generally then?

A. No, sir; I have never seen any deleterious effects.

Q. Have you had occasion to observe the habits of children with respect to Coca Cola?

A. I never observed any child take it except one, and that was not as a patient but simply a child in a family who were friends of mine.

Q. Have you observed children taking their drinks at soda fountains?

A. Yes, sir.

Q. Is it not true that they usually prefer some other drink than Coca Cola?

Mr. Miller: We object to that.

The Court: I sustain the objection.

BY MR. SIZER:

Q. From your observation of the use of it, I will ask

you whether Coca Cola is a habit-forming drug?

A. I don't think it is.

Q. In moderate quantities, or in the quantities in which you have observed it consumed, state whether or not it is beneficial.

A. It is.

Q. Do you personally use any caffeine-containing beverages?

A. I take both tea, coffee and Coca Cola.

Q. How much do you use a day?

A. It varies; some days I do not drink any and some days two cups of coffee and two or three glasses of Coca Cola and a cup of tea, on an average one glass of Coca Cola for the past seven or eight years besides coffee.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. When you say it is beneficial, do you mean to the Coca Cola Company or to the individual who drinks it in moderate quantities?

A. To the individual who drinks it in moderate quantities.

Q. Is Doctor Hare's book a standard authority and do you recognize it as such on the effect of caffeine on the human system?

Mr. Sizer: We have not qualified this witness as an expert. Doctor Hare's book has already been gone into with others.

Mr. Miller: I thought you asked him about his experience as a physician?

Mr. Sizer: No, I asked him about his personal knowledge.

Mr. Miller: Limited to the people he saw in the drug store?

Mr. Sizer: I didn't limit it.

Mr. Miller: What was it. I want to know. I want to know how far I can go without making him my witness.

Mr. Sizer: I asked him to testify as to his observations on the people that he has seen and come in contact with.

BY MR. MILLER:

Q. Didn't you see girls and boys come into town every morning when you were about drug stores, don't you see them swarming over to Loveman's and Miller Brothers' and calling for Coca Cola like bees around honeysuckle?

A. Yes, sir.

Q. And they call for it by the name of "coke" and "dope" and various other names like that, don't they?

Mr. Sizer: I object on the ground that we have already shown Coca Cola is not sold under the name of "coke" or "dope" by the company manufacturing it and the manner in which it is called for by others is not competent.

The Court: I overrule that objection.

Mr. Sizer: I thought you overruled it before because we had not shown that we were not responsible for that designation. Please note an exception.

The Court: That may be done.

BY MR. MILLER:

Q. Is it not called for promiscuously under the name of "dope" and "coke" and "Coca Cola"?

A. And numerous other appelations.

Q. Numerous other appelations?

A. Yes, sir.

Q. And these boys and girls that work in the department stores do come in and rush right in to get it the first thing?

A. I have not noticed them rush in or they get it the first thing in the morning but I see them drinking it like I see lawyers and doctors and preachers.

Q. How many preachers do you see standing around drinking Coca Cola?

A. I have drunk it with a good many of the preachers of Chattanooga.

Q. Just give one.

A. I have drunk Coca Cola with Rev. T. S. McCallie at ball games.

Q. Do you know that he was one of those that had been treated for the habit by Doctor McQuillan?

A. No, sir; I didn't know that he had been treated for it.

Q. Is he not a patient of yours?

A. No, sir.

Q. Your observation was not made with respect to testifying in this case but merely casually as you went along, at drug stores?

A. In the last few months I have paid more attention to the drinking of Coca Cola and the effects on my friends and also my patients and men whom *i* knew used Coca Cola.

Q. Were you formerly connected with a Coca Cola bottling company that manufactured Coca Cola?

A. Yes. At one time I owned a little stock in a bottling company organized in Galveston, Texas, and which because of mismanagement, failed.

Q. They were engaged in the handling of Coca Cola?

A. Yes, sir; bottling it.

Q. Now, about this matter of H. Gibson O'Neal, were you not reprimanded by the medical society in connection with Dr. H. Gibson O'Neal's treatment?

A. No, sir; emphatically not.

Q. Did you receive a reprimand from the medical society here in that connection, or in any other connection?

A. I have in another conection and I shall be glad to explain it.

Q. Tell us what the medical society reprimanded you for.

A. I shall be glad to explain that. I had a patient I do not expect it will be necessary to give the woman's name. She was taken ill very suddenly with an acute pain in the abdomen and they called for me at my home. I had operated on her previously and had waited on her sister at her home in a case of confinement previous to this a few months.

They called me in the morning to attend her and I was on my way to my office and they were unable to get me. A lady who was in her apartments at the time suggested that she call Dr. West and Dr. West was right across the street from this lady's home and they called him. He came in and attended her that forenoon and again in the afternoon and pronounced the case one of appendicitis and treated her with enemas and along the line for appendicitis. They called Doctor West in the evening and were unable to get him. They 'phoned over to Doctor West's house and they were told that he was out of town. They then telephoned me and said over the telephone that this lady had a case of appendicitis and for me to come at once as she was suffering terribly. I went there and found her in a cold, clammy perspiration, very rapid pulse, 160; vomiting, and they were treating here by giving her another enema. I inquired what they were doing that for and they said: "We tried to get you this morning and couldn't and we got Doctor West," and I asked them what was his diagnosis and they said Doctor West said it was appendicitis.

I inquired into the matter and I found that it was a ruptured tubal pregnancy and her abdomen was filled with blood. I said immediately she must be taken to the hospital and operated upon, and I removed her and I had a conference with Doctor Boland and he agreed with me and assisted me in the operation.

After six hours we opened the abdomen and found a ruptured tubal pregnancy and probably a quart and a half of blood. We sewed her up and treated her and she

made an uneventful recovery.

That was on Tuesday—or Wednesday, and on the following night when I arrived at the medical association I was handed a slip and asked if I knew anything about it and I said no and I found the following:

"Gentlemen of the Chattanooga and Hamilton County Medical Association:

I desire to prefer charges of unprofessional conduct against Doctor Raymond Wallace on the following counts:

1.—Unsugical conduct in having operated upon a case of ruptured tubal pregnancy in a condition of shock.

2.—Ungentlemanly conduct, having abused me to the family."

And there was a third count, of less importance than those and I have forgotten what it was. The matter was taken up by the Board of Censors of the Medical Society and very thoroughly investigated at a cost of about fifty dollars for stenographic fees and witnesses and other things, and they reported back to the Medical Society and freed me of all the charges except one point: They maintained that the next day after I had operated on the woman I should have called Doctor West in consultation. I still disagree as practically all of the members of the Medical Society do, that that was an exceedingly foolish request inasmuch as Doctor West had made a wrong diagnosis in the first place and precipitated the trouble by improper treatment.

Q. And in the meantime the patient died?

A. In the meantime the patient got well.

Q. You said she made an uneventful recovery; what did you mean by that?

A. The patient got well.

The Court: I hope there will be no further cross-examinations of this kind.

Mr. Miller: I should not have done it except for the examination of Doctor McQuilian on this subject.

RE-DIRECT EXAMINATION,
BY MR. SIZER,

Q. Mr. Miller asked you about the boys and girls at Loveman's going to the soda fountain and getting Coca Cola. What did you mean by that?

A. I never noticed any evidence of poison.

Q. I said: "Boys and girls."

A. Oh, I beg your pardon.

Q. What were their ages?

A. Sixteen to fifty; the employes in the stores.

Q. Are you connected with any Coca Cola bottling business at this time?

A. No, sir; I have not been for two years and was only then for two months.

Mr. Miller: How many boys and girls ten years and up in the department stores? Are there not a great many?

The Witness: Some, but I do not know the number.

BY MR. SIZER,

Q. Do you know any of the age of ten years who drink Coca Cola?

A. I have not seen them. That is the reason I did not include them.

Mr. Miller: There is one question that I want to ask Doctor Sattler if he is going home this evening.

(Witness excused.)

DR. SAMUEL P. SATTLER,

recalled as a witness herein, testified as follows:

RE-CROSS EXAMINATION, Continued,
BY MR. MILLER,

Q. What was the quantity of Coca Cola syrup you used for making the iron chloride, or ferri-chloride as you term it, on the other test you made?

A. Four hundred cubic centimeters.

Q. Did you add iron to that?

A. I do not remember the stage at which the test was made. I think it was after the chloroformic extraction when I had the aqueous liquid concentrated down and then made the test. I think that was the time.

Q. Were sugar and caramel in there at that time?

A. I am not quite clear but I think that I made the chloroformic extraction and after that concentrated it down and took a little bit of water from the residue and took an infusion or solution made in that way by filtering off and tested that.

Q. Does that mean that the sugar and caramel were or were not in the infusion you took?

A. I do not think there was any sugar in it because it was a very thin solution that I had at that stage.

Q. How about the caramel?

A. There may have been possibly some.

Q. How did you get rid of the sugar in that four hundred cubic centimeters?

A. I shall have to refer to my notes to give you an accurate answer on that point.

Q. Are you clear as to how that was? I want to get

the fact in the record if you are going to be here tomorrow.

A. I shall be here to-morrow and I will answer the question.

(Witness excused.)

Mr. Sizer: We will now read some depositions.

Mr. Candler: I will now read the following deposition of Dr. C. J. Gooding:

"C. J. GOODING,

the first witness, of lawful age, duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. McALLISTER:

Q. Where do you live, Doctor?

A. In Knoxville, Tennessee.

Q. What business are you in?

A. Druggist.

Q. How long have you been engaged in the drug business?

A. Forty seven years.

Q. And how long have you been in that business in Knoxville?

A. Thirty-six years.

Q. Thirty-six years?

A. Yes, sir.

Q. Now, state whether or not, Doctor, you operate a soda fountain in connection with your drug business?

A. I do.

Q. What drinks do you sell, the principal drinks, at your soda fountain?

A. Coca Cola.

Q. How long have you known the drink, Coca Cola, Doctor?

A. Well, about eighteen years.

Q. And how is that drink served at your fountain?

A. Diluted with carbonated water.

Q. And what is diluted with water?

A. The syrup.

Q. What is it that is diluted?

A. The Coca Cola syrup.

Q. The syrup?

A. Yes, sir.

Q. Where and by whom is the syrup made, Doctor?

A. In Atlanta, by the Coca Cola Company, in Atlanta, Georgia.

Q. And how long have you known of Coca Cola?

A. About eighteen years.

Q. In what proportion do you mix the syrup with the carbonated water at the fountain?

A. One ounce to seven, that is it fills an eight ounce glass.

Q. One ounce to seven of what?

A. One ounce of Coca Cola to seven of carbonated water.

Q. State whether or not, Doctor, there has ever been to your knowledge any other drink placed on the market known as "Coca Cola" except that made by the Coca Cola Company in Atlanta, Georgia?

A. Not that I know of.

Q. Now, please state whether or not there has been any other substance, beverage, food product of any kind, known as "Coca Cola" placed upon the market within your knowledge other than by the Coca Cola Company, of Atlanta, Georgia?

A. Not to my knowledge, no.

Q. About how many gallons of Coca Cola syrup a year do you handle, Doctor?

A. From seven hundred and fifty to a thousand gallons.

Q. What effect, if any, do weather conditions have upon the sale of Coca Cola?

A. Well, they are not as great in cold weather as they are in the summer time.

Q. What has been your observation as to the number of glasses of Coca Cola a day an average man who drinks Coca Cola at all will drink?

A. Well, from one to two, possibly three.

Q. You say one or two?

A. Yes.

Q. What has been your observation, Doctor, as to whether or not Coca Cola creates in a person who drinks it a craving for increased quantities or number of glasses of Coca Cola?

A. Well, I have never noticed any.

Q. You have never noticed any?

A. I have never noticed any desire for it especially.

Q. Doctor, to what extent do children drink or call for Coca Cola?

A. I have no children to drink Coca Cola at my fountain.

Q. I do not mean, of course, doctor, you understand, to refer to your children?

A. Well, I have no children.

Q. Yes. Now, to what extend has Coca Cola been advertised during your acquaintance with it?

A. Very freely.

Q. Very freely, you say?

A. Yes, sir.

Q. About what proportion of the drinks sold at your fountain, Doctor, does Coca Cola form?

A. I suppose of my drinks it would probably be about two-thirds.

Q. Two-thirds of your drinks are Coca Cola?

A. Yes, sir.

Q. Now state whether or not there has ever been a case within your knowledge of any person being injuriously affected by drinking Coca Cola?"

Mr.Miller: I object to that question and answer. He has not qualified.

Mr. Sizer: He has been in business eighteen years.

The Court: I overrule the objection.

"A. None whatever.

Q. Do you drink Coca Cola yourself, Doctor?

A. I do.

Q. Now, what has been your experience as to whether or not the drink Coca Cola creates a craving or desire for increased consumption of Coca Cola?

A. None whatever.

Q. How long have you been drinking it?

A. Eighteen years.

Q. How many glasses do you drink a day?

A. Never over two; I average from one to two a day.

Q. State whether or not, Doctor, this drink or beverage known as "Coca Cola" has ever been known under any other name?

A. Well, sir, not to my knowledge.

Q. Doctor, I believe you stated awhile ago that you did not sell as much Coca Cola in cool weather as you did in warm weather?

A. No, sir, I do not.

Q. Now, about what is the difference, about how much would it vary?

A. I suppose it might vary, probably, well, it depends a great deal on how severe the cold is—very cold weather—we don't serve it hot, and therefore they don't drink as much beverage in the winter as in the summer, but I have never studied exactly how much, but probably one-half to three-fourths, probably I say.

Q. Depending upon the intensity of the cold?

A. Yes, of the cold weather.

CROSS-EXAMINATION,
BY MR. MILLER,

Mr. Miller: Reserving exceptions as to irrelevancy and incompetency of the evidence of this witness, the government cross examines as follows:

Q. Now, you say that your principal sale of soft drink beverages is Coca Cola?

A. Yes, sir.

Q. What proportion, relatively, of other soft drinks combined do you sell as compared with Coca Cola?

A. Well, about a third.

Q. You sell then about one part or one fourth of soft drinks, of all others combined, and three-fourths of Coca Cola?

A. Yes, sir.

Q. Now, as a druggist what is your explanation of that phenominal disproportion between Coca Cola and the other soft drinks combined?

A. Well, advertising I think principally.

Q. Then you think it is due to advertising?

A. Yes.

Q. Have you not signs suspended over your fountain of other soft drinks like that of Coca Cola?

A. Not near so many.

Q. But you have them in plain view from your fountain?

A. Just a few only.

Q. Well, you don't have but a few of the Coca Cola signs suspended around there do you?

A. No, sir.

Q. How was that?

A. No, sir.

Q. Then the mere fact of advertising when you have a few of both kinds there would not account for this remarkable increase in the sale of Coca Cola would it?

A. You mean in increase over the others?

Q. You advertise both kinds, you say?

A. Do I understand you to mean an increase over the other drinks?

Q. Yes.

A. Well, I have a reputation on Coca Cola which probably might cause it to run over any other stores.

Q. You have a reputation on Coca Cola?

A. Yes sir, of selling Coca Cola straight, Coca Cola, and a great number of my sales are due to that.

Q. What do you mean by straight Coca Cola as compared with Coca Cola generally?

A. Coca Cola is in some stores diluted and changed, so they say, I don't know but that is the reputation.

Q. Some stores here in Knoxville?

A. I don't know where they are; they say mine is better than anybody else's; why it would be, I don't know; I know that I sell it straight as it is received from the

Coca Cola Company.

Q. And is this reputation that you have heard about the changing of it confined to this locality or is it generally speaking?

A. I do not know anything only what I have heard in the city.

Q. In this city?

A. Yes sir, in this city.

Q. What sort of an adulterant do other people put in it?

A. I don't know sir.

Q. You don't know?

A. No, sir.

Q. Now, you say you have a reputation for selling Coca Cola straight and pure. Don't you sell your other drinks straight and pure also?

A. Yes, sir.

Q. Then, you have a reputation, or you attempt to maintain one, for selling straight and pure drinks?

A. Yes, sir.

Q. What sort of glasses do you use in dispensing Coca Cola and other drinks?

A. An eight ounce glass.

Q. How do you determine what proportion of the mixture is Coca Cola syrup and what proportion is the carbonated water?

A. We have a guage that we draw it by.

Q. What is that gauge, what does it consist of?

Q. Consists of a part of the soda fountain.

Q. How is that?

A. A pump from the soda fountain, or in the soda fountain. That pump is sort of an automatic arrangement that you press with the trumb, and it permits a certain quantity of Coca Cola or syrup of any other beverage, to flow into the glass.

Q. Now you can press that gauge once and a certain quantity will flow, and you can press it back and a smaller quantity will flow, and so on, can't you?

A. Yes, sir.

Q. So it is possible by means of that guage to fill the glass with Coca Cola, or to fill it half full or a third full?

A. It is only gauged to serve one ounce by one pressure.

Q. I understand, but that depends on how many times you press the guage as to what quantity of Coca Cola you get into that glass,

A. Yes, sir.

Q. And that is left entirely to the fountain server, to

the boy who is serving the customer.

A. Yes, sir.

Q. And if a customer comes in and calls for a "double header," so to speak, you give him two ounces instead of one?

A. He don't do it if I know it.

Q. But you are not there all the time?

A. No sir, but he is under my command.

Q. Then you command your clerk not to serve what is known as a "double header" or double quantity, but to serve only in single quantities of one ounce?

A. Yes, sir.

Q. Now, why do you give him that instruction?

A. Because I am in business for a profit, not to give my money away to my customers; when a man comes into my house to buy anything I expect to make something on him.

Q. Well, if a man is willing to pay double price you would be willing to serve him a double quantity?

A No, sir.

Q. And why not?

A. Because I do not think that a man who comes into my place for a drink is entitled to that much.

Q. And why don't you think he is entitled to that much? Why is he not entitled to a double dose?

A. If a man came into my store and wanted a dose of laudanum for the stomach ache, do you think I would give him two doses simply because he wanted to pay for two doses?

Q. But if it was harmless it would seem like you would want to serve double quantity, if you got the price for it?

A. Well, you don't look at it like I do. I think that a man can take too much of anything.

Q. You do think that a double portion, or in excess of an ounce of Coca Cola syrup might prove harmful?

A. Too much of anything is harmful.

Q. Do you say that in excess of an ounce of Coca Cola taken at one time might prove a harmful dose?

A. I don't know whether it would or not.

Q. You don't know how that is?

A. No sir.

Q. But your suspicions are so well founded that it might be that you instruct your clerks to serve only one ounce?

A. I do that simply as a matter of profit; that is the quantity that I allow him to sell.

Q. But you say you would not allow him to serve two

ounces if the man should offer to pay for a double quantity?

A. I don't do that with any of my drinks.

Q. How was that?

A. I don't do that with any of my drinks.

Q. Well, I understand you do not. Now, what is the reason that you do not?

A. Because I think that when a man gets eight ounces of a drink at a time that is enough for him.

Q. But if he gets eight ounces of a drink, two ounces of Coca Cola syrup in it, is that too much?

A. He would be getting sixteen ounces which would be getting a pint of liquid.

Q. But he might have two ounces of syrup and six ounces of water?

A. He don't get it at my place.

Q. And why not?

A. Because it is not my rule and not my way of doing business.

Q. You say you have not heard of this mixture being sold or called by any other name except "Coca Cola"? Now, isn't it a fact that it is very frequently known and termed "dope," and when a customer comes in and calls for "dope" don't you know exactly what he wants, that it is Coca Cola?"

Mr. Sizer: Without renewing our objections all through to this line of questions about "dope" and "coke" I want them to be considered as put in.

The Court: Yes, it is considered that objection is made to all of that line and the objection is overruled with exception.

"A. Yes sir, it is Coca Cola.

Q. So that the name of this drink is Coca Cola or dope, as the case may be?

A. Well, I think that dope business is just more as, or just simply to say, "Coca Cola," and instead of saying "Coca Cola" they say "dope."

Q. The people who drink it and your customers when they come in and call for "dope" your force understands that he means "Coca Cola."

A. Yes, sir.

Q. You don't mean to say that "dope" is a distinctive name for Coca Cola, do you or not?

A. No , sir. There are other dopes.

Q. There are other dopes?

A. It is just simply a name that it has got, instead of saying "Coca Cola" they just say "dope."

Q. What are some of the other dopes that you speak

of?

A. Morphine, laudanum, cocaine, and a whole lot of things.

A. But the only dope that you sell at the fountain is Coca Cola?

A. Well, it goes by the name of "dope."

Q. Now, when a customer calls for "dope" why don't you sell him morphine or something of that sort or some of the other dopes?

A. That is against the law.

Q. And how was that, Doctor?

A. That is against the law.

Q. Why is Coca Cola called "dope"?

A. I don't know, sir.

Q. Now, Doctor, if a customer would come in and ask for two glasses or one glass, and then another glass right after it of ordinary soda water, or two dishes of ice cream why you would not object to your clerk selling him that?

A. Of ice cream, no sir, I would not of ice cream.

Q. And if he asked for two glasses of lemonade, you would not object to selling him that?

A. Never sold two glasses of lemonade that I know to one party.

Q. But if a person asked for it you would not offer any objection to him having it?

A. I don't know whether I would or not; it depends on the weather a great deal.

Q. If he asked for two glasses of strawberry soda water or lemon soda water, you would not object to his having that?

A. I might not on one occasion, but if he made a practice of it I would.

Q. But you would object to serving two glasses of Coca Cola to the same person, one after the other?

A. He never called for two —

Q. (Interrupting) But didn't you state that you would object to it?

A. Yes, I would; I don't think a person needs it at all.

Q. There is not any gauge on the glasses that you use at your fountain for dispensing Coca Cola?

A. No, sir.

Q. Did I understand you to say that Coca Cola has never been served at your fountain to children?

A. Not that I know of; I have never seen any children drink any of it there.

Q. Do you mean by that that you would not let it be served to children?

A. No, I didn't say so.

Q. How was that?

A. I didn't so say.

Q. What do you mean by that?

A. I said that children did not drink it there and did not call for it.

Q. Well, how do you account for the fact that children do not call for it and adult persons do?

A. I don't know, sir.

Q. And you can't explain after your eighteen years of experience?

A. No, sir.

Q. Your fountain is patronized by school children?

A. Very little.

Q. What portion of the city is your place of business in—is it on Gay Street?

A. Yes, sir.

Q. In a populous portion of the town?

A. Yes, sir.

Q. You do not have any school children, shop girls or anybody like that?

A. Very few.

Q. Who patronize your store?

A. My store is in the middle of the block and we don't have a great many children come in there, especially school children.

Q. Are there any shop girls that patronize your place of business?

A. There may be, sir, I don't know any of the shop girls; I attend strictly to my business; I couldn't tell who they were.

Q. Do they have to stand around the fountain to receive Coca Cola or do you have tables or chairs provided for them?

A. No tables and no chairs.

Q. Do you have stools around the fountain?

A. We have simply a settee where they may sit for just a few minutes.

Q. Now, you stated, I believe, that you would not serve two glasses of Coca Cola to a person in succession, that is one after the other. May I ask you now how many glasses you would serve to the same person during a day?

A. I would not limit them to a day, I couldn't say how many I would serve; as I say I have people who come there and drink not over three glasses a day, two or three glasses a day that I know of.

Q. That you know of?

A. Yes; I do not see everybody that comes to my soda fountain.

Q. Where do you stay? What is your position in the store?

A. I am manager and prescription clerk.

Q. And you are cut off from the fountain by your partition behind which you mix prescriptions?

A. No, not all of the time.

Q. But the major portion of the time?

A. I couldn't say that I was. I have a desk out in front of the partition that I occupy a great deal.

Q. Now, out at your desk you could not observe what took place at the fountain?

A. Not all of the time.

Q. Except in a general way?

A. Just in a general way.

Q. You do not pretend to say that nobody buys over three glasses of Coca Cola at your place a day?

A. No, sir, I couldn't state it positively.

Q. Now, I will ask you as a prescriptionist why it is you would not serve or would not permit your clerks to serve two glasses of Coca Cola or two ounces of Coca Cola to the same individual at one time?

A. Simply because I don't want to do it; I don't know that I have any special objections to it except I think a man has enough.

Q. Do you mean to say that one ounce of Coca Cola syrup at a time is enough?

A. I think that eight ounces of water is enough.

Q. Well, if you put two ounces of Coca Cola in six ounces of water that makes eight ounces of liquid?

A. I don't put in two ounces of Coca Cola.

Q. But, if you did, he would only get eight ounces of the mixture?

A. Yes, sir.

Q. And you stated awhile ago that if he would pay the double price you would serve it to them?

A. No, sir.

Q. And why not serve it if they pay the price?

A. Because it is my principle.

Q. Well, what is the reason or basis for that priniple of yours?

A. I don't know, just an idea I have got in my head I don't serve it; I don't give over two ounces of the ordinary syrup, or an ounce and a half, I don't double up the doses.

Q. But why do you hold to the idea that two ounces of Coca Cola syrup ought not to be served in six ounces of carbonated water?

A. I simply stated that I thought a man had enough in one glass; eight ounces of water is sufficient for one

person in my idea; I don't consider what anybody else —

Q. (Interrupting.) But that does not answer the question—if you have two ounces of Coca Cola syrup in six ounces of carbonated water, or say one and a half ounces of Coca Cola syrup in six and a half ounces of carbonated water, then you only have eight ounces of the mixture—why is it that you say to your clerks they must serve only one ounce of Coca Cola syrup in these eight ounces of mixture?

A. I have stated that I do it for a profit, and that I don't serve but one ounce to a glass. I do that as a matter of profit.

Q. But you have stated that if a man wanted to pay double price you would not serve two ounces of Coca Cola syrup and I wish to know why?

A. Because I don't want to do it; I have no special reason. That is my principle of doing business.

Q. Now, if you realize a profit from serving one ounce of Coca Cola syrup with seven ounces of carbonated water, you would naturally get double profit by serving two ounces Coca Cola syrup with six ounces of carbonated water?

A. Well, that may be so.

Q. And why not do that?

A. I am not out for the money like some people are.

Q. I thought you stated it was strictly a matter of profit with you before, and therefore you would not serve two ounces in one drink?

A. Yes, it is strictly for one drink.

Q. Now, Doctor, what is the reason then that you would not serve two ounces of Coca Cola syrup with six ounces of water if a customer wanted to pay double price?

A. Because I do not want to do it; it is not my principle.

Q. And what is your reason for that?

A. I have my own reasons.

Q. And what are your own reasons?

A. Just on the same basis as I would not give a man four ounces of castor oil at a dose.

Q. And why not?

A. Because I don't think he needs it.

Q. And why would you not give him the extra dose of laudanum that you referred to awhile ago?

A. I don't think it would be right to give it to him.

Q. And you don't think it would be right because it would prove injurious to his health?

A. I think if a man gets eight ounces of a liquid in a drink that is all that he needs; he can go somewhere else

and get more if he wants to.

Q. But, Doctor, I have assumed that he was only getting eight ounces of the mixture, and you are increasing the amount of the mixture—I mean I am simply increasing the amount of the Coca Cola in the mixture, and you say you would not let them increase it?

A. Yes, sir, that is right I would not.

Q. Because it is against your principles.

A. Yes, sir, because it is against my principle.

Q. And it is against your principles because you think it might have a deleterious effect on his health?

A. I don't know, it might do him good.

Q. Well, would a double dose of laudanum do him good?

A. No, sir.

Q. And for the same reason you would not serve a double dose of the Coca Cola syrup?

A. Well, I do as I please in running my business; I don't ask anybody else to run my business.

Q. Then the facts are that you do not think a double dose of Coca Cola would do him any good?

A. I didn't say so.

Q. But I am asking you under oath if that is not a fact?

A. Well, I don't know whether it would or not.

Q. But your suspicions are so strong in that direction you won't let your clerks serve over one ounce if you know it?

A. My suspicions are not any at all; I have just got that principle of doing business; people come in there for a dose of medicine and I turn them down, and I don't have to give it to them unless I want to—I run my own business.

Q. Now, is that an arbitray rule of yours, the serving of one ounce of the syrup at a time?

A. I don't know whether it is arbitrary or not; it is my principle.

Q. I believe you say that was due to the fact that that was your personal view on the subject?

A. Yes, sir.

Q. Now how many glasses of Coca Cola do you get out of a gallon of Coca Cola syrup?

A. When served to customers, I am supposed to get one hundred and twenty-eight glasses.

Q. You say you are supposed to get that. Is that as a matter of fact about what you do get?

A. I think so, sir; I am not positive on the subject. There is wastage and things of that kind, I couldn't say a barrel would run out exactly fifty gallons in a fifty gallon barrel; there is always a certain amount of wastage

going on that you can't control.

Q. Now, you stated in chief that generally speaking you had not noticed any special craving for Coca Cola. Now, what do you mean by any "special craving"?

A. I mean that I have never noticed anybody that came in there with a rush or anything of that kind, or had to have a Coca Cola immediately—they came in there and I have never noticed my customers take any more than they usually do, one or two or three glasses a day as I say.

Q. You don't know how much they get at other places?

A. No, sir, I don't run somebody else's business.

Q. By your customers you mean a man who patronizes your place regularly, and women, too?

A. Yes, sir.

Q. Well, anybody who comes in with the price can get a glass of Coca Cola at your fountain?

A. Yes, sir.

Q. Whether it be a child or a grown person?

A. Yes, sir.

Q. And what do you mean by "children" when you say children do not patronize your fountain?

A. Well, children I should consider under ten or twelve years of age.

Q. And by children you meant to limit persons to ten years of age?

A. Ten or twelve years.

Q. Now, do you know what is in Coca Cola?

A. I do not.

Q. Do you know whether or not there is any caffeine in it?"

Mr. Sizer: I object to that.

The Court: Objection sustained.

(Reading continued:)

"RE-EXAMINATION,
BY MR. McALLISTER:

Q. Doctor, in reference to the advertising that you were asked about, I believe you stated it was very extensively advertised, or words to that effect. By whom is that advertising or has it been done by, Doctor?

A. By the company.

Q. By what company?

A. The Coca Cola Company.

Q. By the Coca Cola Company?

A. Yes, sir.

Q. And what is the nature of that advertising?

A. Well, it is done in different ways; it is done by ticket, by placards, it is done by signs.

Q. So that in regard to the advertising of Coca Cola you are not dependant upon the signs that you hang over your fountain or your door for the pushing of Coca Cola?

A. No, sir.

Q. Now, Doctor, would you give a man a double portion of chocolate syrup in a drink when he asked for it, or offered to pay for it?

A. I have never been asked for it.

Q. Have you ever been asked for a double portion of Coca Cola syrup?

A. Not to my recollection.

Q. Now, as a matter of fact, would that make a very sweet concoction —

Mr. Miller (Interrupting): I object to the leading form of the question.

BY MR. McALLISTER:

Q. Then, I will as you, would it or not make a very sweet concoction?

A. I would not like to answer that question.

Q. You have never drank it that way?

A. No, sir.

Q. But would you give a man a double portion of any syrup in a drink if he were to ask for it?

A. I would not.

Q. Now, Doctor, you have stated that sometimes people call for it under the name of "dope."

A. Yes.

Q. Now, I will ask you as a pharmacist and as a man who is accustomed to the operation of a soda fountain, whether it is understood by that that Coca Cola contains any opiate?

A. I do not so understand it.

Q. As a matter of fact, is "dope" a slang expression?

A. Yes, sir; that is the way I take it.

Q. You have heard a child called a "kid," have you?

A. Yes, sir.

Q. But you don't understand by that he was a little goat?

A. No, sir.

RE-CROSS EXAMINATION,
BY MR. MILLER,

Q. You know that sometimes you give a larger dose of castor oil or salts or any other drug than you do in other instances, don't you?

A. Yes, sir.

Q. But the dose varies according to the result desired to be obtained?

A. Yes, sir.

Q. Now then, that being so why is it that you would not give a larger dose of Coca Cola than one ounce in eight ounces of mixture, if the customer was willing to pay for it?

A. There seems to be a little difference between a drug and a drink or a beverage.

Q. Well, caffeine is a drug, is it?

A. Sir?

Q. Caffeine is a drug?

A. Yes, sir.

Q. And if you are going only to get eight ounces of mixture, and caffeine is practically harmless, why not give a double dose of caffeine or Coca Cola syrup in the mixture if the customer was willing to pay the price?

A. I don't know what is in Coca Cola.

Q. You don't know whether there is any drug in it or not?

A. I do not.

Q. And if you don't know what is in it—

A. (Interrupting) The Coca-Cola Company never told me what they made Coca-Cola out of.

Q. Now, isn't it true that some patrons like their drinks stronger than others, say, for instance, more acid in it, than others?

A. Yes, sir, they want it.

Q. If they ask, for instance, for a dose—I mean, for a glass, of one kind of soda water, and they want it extra strong, don't you give it to them the way they want it?

A. No, it is my instructions not to give it to them that way, but to give so much, is my instructions.

Q. But you do vary it when it comes to castor oil or anything like that?

A. Yes.

Q. And if they say they want an extra large dose, you give them that?

A. I am the judge of whether they ought to have that much or not.

Q. And you are also the judge as to whether or not they get an extra dose of Coca-Cola syrup?

A. I have a rule to run my soda fountain by, and they get so much for their money.

Q. But you won't sell them double that quantity for double the price?

A. No, sir."

Thereupon the Court, at two o'clock P. M., adjourned until Friday, March 31, 1911, at Nine o'clock A. M.

Exhibit to Deposition of Dr. Kebler.

UNITED STATES OF AMERICA,
DEPARTMENT OF THE INTERIOR.
UNITED STATES PATENT OFFICE.

To all to whom these presents shall come, GREETING:

THIS IS TO CERTIFY that the annexed is a true copy from the Records of this office of the Certificate of Registration, Statement, Declaration, and Facsimile in the matter of the

Trade-Mark Registered by
The Coca-Cola Company,
January 31, 1893, Number 22,406.
for
Nutrient or Tonic Beverages.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington, this 13th day of November, in the year of our Lord one thousand nine hundred and nine and of the Independence of the United States of America the one hundred and thirty-fourth.

(SEAL.) F. A. TENNANT,
Assistant Commissioner of Patents.

No. 22,406.

THE UNITED STATES OF AMERICA.

TO ALL WHOM IT MAY CONCERN:

This is to certify that by the records of the United States Patent Office it appears that the Coca-Cola Company of Atlanta, Georgia, a corporation organized under the laws of the State of Georgia did, on the 14th day of May, 1892, deposit in said Office for Registration fac-similie of a certain

TRADE-MARK

for Nutrient or Tonic Beverages, and the date of the receipt thereof was duly noted and recorded, that on the 14th day of May, 1892, it deposited therewith a statement, and a written declaration under the oath of Asa G. Candler, an officer of said corporation, copies of all of which are hereto annexed; and the said corporation having made the payment of a fee of Twenty five dollars, and complied with the regulations in such cases prescribed by the Commissioner of Patents, and in all other respects complied with an Act of Congress approved March 3, 1881, entitled "An Act to authorize the Registration of Trade-Marks and protect the same," the said fac-similies, statement, and declaration were duly recorded, and the said TRADE-MARK has been duly registered in the said Patent Office this 31st day of January, one thousand eight hundred and ninety-three and protection therefor will remain in force

for Thirty Years from said date, unless sooner terminated in accordance with Section 5 of said Act.

IN TESTIMONY WHEREOF the seal of the Department of the Interior is hereto affixed this thirty-first day of January, 1893, and of the Independence of the United States the one hundred and seventeenth. Given under my hand at Washington, D. C.

W. E. SIMONDS,
Commissioner of Patents.

TRADE-MARK.

—o—

The Coca-Cola Company.
Nutrient or Tonic Beverages.

No. 22,406. Registered Jan. 31, 1893.

COCA-COLA

Witness:
Geo. E. Freeh.
Rol A. Fitzgerald.

Proprietor
The Coca Cola Co.
per
Lehmann, Pattison & Nexbit,
Attorneys.

UNITED STATES PATENT OFFICE.

The Coca Cola Company, of Atlanta, Georgia.
Trade-Mark for Nutrient or Tonic Beverages.
Statement and Declaration of Trade-Mark No. 22,406.
Registered January 31, 1893.
Application filed May 14, 1892.

STATEMENT.

TO ALL WHOM IT MAY CONCERN,

Be it known that The Coca Cola Company, a corporation organized under the laws of the State of Georgia, and located in the city of Atlanta, Fulton county, in the State of Georgia, and doing business in said city of Atlanta, has adopted for its use a Trade-Mark for a Tonic, Sirup, or Beverage, of which the following is a full, clear, and exact specification.

The said trade-mark of said company consists of the word or words "Coca-Cola." These words have been generally written as a compound word, and in the particular form represented in the accompanying fac-simile, that is to say, with the lower portion of the "C" beginning the word "Coca" extended under the entire work in the form of a dash, and the top of the "C" beginning the word "Cola" extended over the letters following in the form of a dash. Upon the dash of the first "C" said corporation generally has the word "Trade-Mark." While said corporation prefers to form the initial "C's" as just described, and also to form the word as a compound word, yet the word

may be altogether as one word, or separately as two words, and the dashes omitted, without materially altering the character of the said trade-mark, the essential feature of which is the word "Coca-Cola."

This trade-mark was adopted by the privies in title of The Coca Cola Company, about the 28th day of June, 1887, and has been continuously used by them and the said corporation since that time.

The class of merchandise to which this trade-mark is appropriated is beverages, and the particular goods comprised in such class on which it is used by the said company is nutrient or tonic beverages. It is usually affixed to the goods by either affixing it to the bottles, kegs or barrels containing the same, in the form of a label, or by printing or stamping the same thereon, or by blowing the letters in the bottle itself.

THE COCA COLA COMPANY,
BY ASA G. CANDLER, President.

Witnesses:
JOHN S. CANDLER,
WM. A. HAYGOOD.

DECLARATION.

State of Georgia, County of Fulton, ss;

Asa G. Candler, being duly sworn, deposes and says that he is president of the corporation, the applicant named in the foregoing statement; that he verily believes that the foregoing statement is true; that the said corporation has at this time a right to the use of the trade-mark therein described; that no other person, firm or corporation has the right to such use, either in the identical form or in any such near resemblance thereto as might be calculated to deceive; that the trade-mark is used by the said corporation in commerce between the United States and foreign nations and Indian tribes and particularly with Canada, and that the description and fac-similes presented for record truly represent the trade-mark sought to be registered.

ASA G. CANDLER.

Sworn and subscribed to before me, a notary public, this 6th day of May, A. D. 1892.

(L. S.) WM. A. HAYGOOD,
Nortary Public, Fulton County, Georgia.

UNITED STATES OF AMERICA,
DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all to whom these presents shall come, GREETING:

THIS IS TO CERTIFY that the annexed is a true copy from the Records of this office of the Certificate of Regis-

tration, Statement, Declaration, and Drawing in the matter of the

Trade-Mark Registered by
The Coca Cola Company,
October 21, 1905, Number 47,189.

for

Tonic Beverages, and Syrups for the Manufacture of Such Beverages.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington, this 13th day of November, in the year of our Lord one thousand nine hundred and nine and of the Independence of the United States of America the one hundred and thirty-fourth.

F. A. TENNANT,
Assistant Commissioner of Patents.

THE UNITED STATES OF AMERICA.

To all to whom these presents shall come:

THIS IS TO CERTIFY That by the records of the United States Patent Office it appears that The Coca-Cola Company, of Atlanta, Georgia, a corporation organized under the laws of the State of Georgia, did on the 22nd day of April, 1905, duly file in said office an application for Registration of a certain

TRADE-MARK

for Tonic Beverages, and Syrups for the Manufacture of such Beverages, that it duly filed therewith a drawing of the said Trade-Mark, a statement relating thereto, and a written declaration, duly verified, copies of which are hereto annexed, and has duly complied with the requirements of the law in such case made and provided, and with the regulations prescribed by the Commissioner of Patents.

And, upon due examination thereof, it appearing that the said applicant is entitled to registration of its said Trade-Mark under the law, the said Trade-Mark has been duly registered to The Coca-Cola Company, and its successors or assigns, in the United States Patent Office, this 31st day of October, 1905.

This certificate shall remain in force for Twenty Years, unless sooner terminated by law.

IN TESTIMONY WHEREOF I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this thirty-first day of October, in the year of our Lord one thousand nine hundred and five and of the Independence of the United States the one hundred and

thirtieth.

F. I. ALLEN,
Commissioner of Patents.

TRADE-MARK

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No. 47,189. Registered Oct. 31, 1905.

The Coca-Cola Company.

Tonic Beverages and Syrups for the Manufacture of Such Beverages.

Application Filed Apr. 22, 1905.

COCA-COLA

Proprietor,
The Coca-Cola Company,
By Fred Beall,
Attorney.

UNITED STATES PATENT OFFICE.

The Coca-Cola Company, of Atlanta, Georgia.

Trade-Mark for Tonic Beverages and Syrups for the Manufacture of Such Beverages.

No. 47,189. Statement and Declaration Reg. Oct. 31, 1905.

Application filed April 22, 1905.

Serial No. 2,730.

STATEMENT.

To all whom it may concern:

Be it known that The Coca-Cola Company, a corporation duly organied under the laws of the State of Georgia, and located in the city of Atlanta, county of Fulton, in said State, and doing business at No. 179 Edgewood avenue in said city of Atlanta, has adopted for its use a trade-mark, of which the following is a description.

The trade-mark of this corporation consists of the words "Coca-Cola."

This trade-mark has been continuously used in the business of said corporation and those from whom it derived its title since about the 28th day of June, 1887.

The class of merchandise to which this trade-mark is appropriated is beverages, and the particular description of goods comprised in said class upon which this trade-mark is used is tonic beverages and syrups for the manufacture of such beverages.

The trade-mark is generally displayed on the packages containing the goods by placing thereon a printed label on which the same is shown and by printing or stamping the same thereon or by blowing the letters into the bottles or other containers of the goods.

THE COCA-COLA COMPANY,
BY ASA G. CANDLER,
Its President.

DECLARATION.

State of Georgia, County of Fulton, ss:

Asa G. Candler, being duly sworn, deposes and says that he is the president of the corporation the applicant named in the foregoing statement; that he believes the foregoing statement is true; that he believes said corporation is the owner of the trade-mark sought to be registered; that no other person, firm, corporation or association, to the best of his knowledge and belief, has the right to use said mark, either in the identical form or in any such near resemblance thereto as might be calculated to deceive; that said mark is used by said corporation in commerce among the several States of the United States and all of said States, and between the United States and foreign nations and Indian tribes, and particularly between the United States and the Republics of Mexico and Cuba, and with Canada and the five civilized tribes of Indians; that the description, drawing and specimens presented truly represent the mark sought to be registered; and that the mark has been in actual use as a trade-mark of the applicant for more than ten years next preceding the passage of the act of February 20, 1905, and that to the best of his knowledge and belief such use has been exclusive.

ASA G. CANDLER.

Subscribed and sworn to before me, Z. D. Harrison, clerk of the Supreme Court of the State of Georgia, this the 17th day of April, 1905.

(L. S.) Z. D. HARRISON,
Clerk of the Supreme Court of Georgia.

Chattanooga, Tennessee,
Friday, March 31, 1911.
Nine o'clock A. M.

Court met pursuant to adjournment.

Appearances, same as on yesterday.

CLAIMANT'S EVIDENCE CONTINUED.

Mr. Miller: If your Honor please, I think it might be well to pick up a few dropped stitches as we go along. There were two questions that were asked Doctor Hare on yesterday that do not appear in the transcript as I am informed. One of them was as to whether or not the Zenetz and Allard cases have ever been discredited in any medical literature that he has read. I have a distinct recollection of that question being asked. I remember that positively, and the other question was if Doctor Schmiedeberg did not refer to the Zenetz case. Those questions I think

I asked just as Doctor Hare was leaving the stand.

The Court: I have a distinct recollection about the first but I do not recall the second.

Mr. Miller: That may have been due to the stenographers changing.

The Court: You can recall the witness.

Mr. Sizer: I recollect something was said about that.

Mr. Miller: The next is that after I had asked as to that treatise of Doctor Schmiedeberg, adversary counsel sought to prove by Doctor Hare that a certain paper, which was subsequently prepared by Doctor Schmiedeberg, changed his opinion. I have had that translated and I would like to pass it to your Honor.

The Court: Counsel for the claimant has given me a copy of it.

Mr. Hirsch: The other translation was one that I gave to Doctor Boos and the translations are identical.

The Court: Before ruling, I do not recall exactly the question that was asked in regard to this paper. How do you claim that this is relevant?

Mr. Sizer: For this reason; on cross-examination, counsel asked Doctor Hare if Doctor Schmiedeberg did not in the work he had written, express a certain opinion as to the effect of caffeine, and he was read some extracts from Doctor Schmiedeberg's treatise, which counsel, I suppose, considered contradictory of Doctor Hare's view.

The Court: On what particular points?

Mr. Sizer: I do not recall without having the testimony before me, but it was generally as to the effect of caffeine.

Mr. Miller: One of them was as to whether the Zenetz case had ever been discredited.

Mr. Sizer: That does not bear on that, but it does bear on Doctor Schmiedeberg's opinion.

The Court: I do not recall any specific introduction of any part of Schmiedeberg's work.

Mr. Miller: In his treatise on toxicology, or rather pharmacology, he mentined some of the symptoms noted after the administration of .5 to .6 grams of caffeine by mouth are vertigo, headache, buzzing of the ears, trembling, unrest, sleeplessness, confusion and delirium.

The Court: I remember that extract was read. I have read this matter and I don't think it is competent to be introduced on re-examination. There is nothing bearing on these matters in the extract. It is the opinion of Schmiedeberg as to the quantities of caffeine contained in coffee and tea and Coca-Cola, and it is a matter that can be got before the jury in another form.

Mr. Sizer: We did not ask Doctor Hare to introduce that, but we asked him whether or not in the opinion subsequent to this that Doctor Schmiedeberg had expressed views that confirmed Doctor Hare as to the effect of caffeine.

The Court: I think it would be proper, if it could be shown that Schmiedeberg had expressed an opinion contradictory to that in the authority to which you refer in some public work, but I don't think that the same weight should be given to an opinion contradictory of what is expressed in his work, in a private letter. I don't think the weight should be attached to the opinion of a scientific man expressed in a letter as would be in a published work subject to the criticism of his fellows, and it would be carrying it very far to allow a private letter to be introduced. The publicity of a scientific article has almost the sanctity of an oath.

(This evidence excluded by the court is as follows:)

"OPINION CONCERNING THE CAFFEINE CONTAINED IN COCA-COLA AS REGARDS ITS EFFECTS UPON HEALTH.

By Dr. Oswald Schmeideberg. (Translation by Dr. J. W. Mallet.)

I have been asked by Mr. Harold Hirsch, of General Counsel for the Coca-Cola Company of Atlanta, Ga., to express my opinion on the question whether caffein (caffeine) in the quantity in which it is contained in the Coca-Cola syrup manufactured and put upon the market by the said Company is injurious or detrimental to health.

In the indictment against the Coca-Cola Company it is said, 'The caffeine in this food produce is derived from waste tea leaves, and not from the cola nut.' As regards this assertion it must at the out set be remarked that for the question of the significance of caffeine in its relation to health it is a matter of indifference from what source the caffeine of this 'food product' is derived, whether from tea leaves or from cola nuts, or whether introduced as pure caffeine. For the influence of the latter, in its effects upon health, there is only to be considered the quantity in which it occures in Coca-Cola Syrup.

Caffeine is the constituent upon which depend the significance of coffee, tea and some other food materials. This significance is far more widespread than that of alcoholic beverages. In all parts of the world, coffee, tea and other food materials containing caffeine, such as cola, Paraguay tea and guarana paste are made use of by the most widely different races of mankind, by people professing all forms of religious belief, by men and women, by the young

without special restriction, whilst alcoholic drinks are prohibited to Mohammedans by religious rule, and women and children as well as many men refrain from their use.

Notwithstanding the unparalleled wide distribution of those food materials, cases of illness from their use which can be held to be due to their content of caffeine, are not known. Caffeine, therefore, in the quantity in which it is taken with these food materials, may with entire certainty be set down as harmless, on the basis of the experience obtained on so large a scale during several centuries.

In this respect the food materials containing caffeine are quite essentially distinguished from alcoholic beverages and from tobacco, the misuse of which so easily gives rise to cases of poisoning and of illness.

The harmlessness of caffeine in food material under consideration is confirmed and explained by the nature of these food materials for the human organism, and it has led in all parts of the world, both civilized and savage people to instinctively discover and use as food material all plants which contain caffeine or the analogous theobromine of similar effect. These plants are the tea shrub, the coffee tree, the cola nut tree, the bush tea shrub, (Cyclopia) the chocolate tree, the South American vine, Paulliana Sorbilis, which yields guarana paste, and finally two species of *ilex*, one of which furnished the so-called Appalachian tea of North America, and the other (Ilex L'Araguayensis) the Paraguay tea, or yuba mate' of the southern regions of South America. But it is not, as one might assume the pleasant taste which has led to the use as food material of different products from these plants. An infusion of Paraguay tea, for example, is far from being agreeable in taste, yet is very highly valued by the inhabitants of the region where the shrub is indigenous. Also the valued good flavor is given to coffee beans by roasting, and to the black infusion prepared therefrom by addition of sugar, milk or cream, and to the leaves of the tea shrub by addition of sweet scented flowers. Hitherto no plant containing caffeine or theobromine has been discovered which has not found use as food material. All the circumstances already mentioned—the instinctive discovery of all so far known plants containing caffeine or theobromine, in all parts of the world, their universally wide distribution in spite of their original lack of pleasant taste, making them uninviting—all these facts prove beyond doubt that the importance of these food materials depends exclusively on their content of caffeine or theobromine. The action of caffeine, with which only we have here to do, concerns at the same time, in a quite peculiar

way, the central nervous system and the muscular system on which the movements of the body depend. When the muscles and nerves are fatigued by severe or long-continued activity, activity can only be continued, if at all, by the most strenuous exertion of the will, caffeine in the quantities in which it is taken with food materials, so acts upon the nerves and muscles that the feeling of fatigue disappears, because the stimulas of the will more easily reaches the muscles, and the supply of energy of the latter can be more easily and efficiently used than in the condition of fatigue without caffeine. Under the influences of the latter, also the more strenuous intellectual activities are more easily prolongued, and the feeling of mental lassitude is less perceptible.

Caffein is hence a means of refreshing bodily and mental activity, so that this may be prolonged when the condition of fatigue has already begun to produce restraint and to call for more severe exertion of the will, a state which, as is well known, is painful or disagreeable.

This advantageous effect in conditions of fatigue of small quantities of caffeine, as it is commonly taken in coffee or tea, might however by continued use become injurious, if it were in all cases necessarily exerted, that is to say, if by caffeine the muscles and nerves were directly spurred on to increased activity. This is, however, not the case, and just in this lies the peculiarity of the effect in question: The muscles and the simultaneously acting nerves only under the influence of caffeine respond more easily to the impulse of the will, but do not develop spontaneous activity, that is, without the co-operation of the will. If after the use of coffee or tea no work is done, as for example after taking coffee at the end of a dinner, muscles and nerves remain quiet as if no coffee had been taken. In such cases the pleasure which good coffee and tea procure are decisively in favor of their use.

This character of caffeine action makes it plain that these food materials do not injure the organism by their caffeine content, and especially do not by continued use cause any chronic form of illness as alcoholic beverages so easily do.

If strong coffee and aromatic tea, especially the so-called green kind, produce with some persons agitation, so that for instance after the use of these beverages in the evening such persons suffer at night from sleeplessness, this does not depend upon the caffeine, but upon the ingredient from which, as has been mentioned the aroma and pleasant taste of well prepared coffee and tea are derived. There are persons who cannot in general bear tea

or coffee, while Paraguay tea, with its less agreeable taste, suits them well, in spite of its containing caffeine.

Experience and the facts obtained by experiment make it therefore indisputable that the quantities of caffeine which are for the most part taken in with coffee or tea used daily for a whole lifetime are non-injurious to health, since they neither give rise to acute or chronic poisoning, nor weaken the organism so as to dispose it to attacks of illness.

It may now be asked further how large are the quantities of caffeine which are usually or as a maximum taken in coffee and tea. A small cup of coffee, of 150 ccm- 5 ounces-which has been prepared from 15 grm.—230 grains of coffee beans—contains 0.1 to 0.12 grm.—1.5 to 1.8 grains of caffeine, and the same amount is contained in a cup of the infusion prepared from 5 to 6 grm.—75 to 90 grains of tea leaves. If it be assumed that a man daily, in the morning, at noon or in the afternoon, and in the evening drinks altogether five cups of coffee or tea or partly coffee and partly tea, he takes in this 0.5 to 0.6 grm.—7.5 to 9.0 grains of caffeine. These moderate quantities are thoroughly harmless. Many persons, especially women, in countries where tea drinking is wide spread, may easily bring the number of cups to double or even several times these figures. Let us assume that the maximum daily ingestion amounts to ten cups of tea or coffee together. These contain 1.0 to 1.2 grm.—15 to 18 grains of caffeine. Even such doses cause no disturbance of health if they be taken, not in the form of pure caffeine all at once, but in coffee, tea and other preparations in a diluted state and in divided portions in the course of the day. In agreement with this in the direction of the Pharmacopoeia of the German Empire that the largest daily dose of caffeine should not exclude 1.5 grm.—23 grains.

Coca-Cola syrup contains, by the accordant analysis of Dr. Mallet of the University of Virginia and Dr. W. D. Biglow of the Department of Agriculture, 0.19 to 0.24 grm., in the average 0.22 grms., or in round numbers, 0.25 grm.—3.8 grains of caffeine in 100 grm.—1540 grains of syrup. As regards content of caffeine, therefore 40 to 45 grm.—600 to 700 grains of Coca-Cola Syrup—are equivalent to a cup, 200 grm.—3000 grains to five cups, and 400 grm.—6000 grains—to ten cups of coffee or tea.

From these data it follows in the most positive way that 200 to 400 grm. of Coca-Cola Syrup taken in divided portions daily, will not be injurious to health. In certain respects, the Coca-Cola syrup is even more harmless than the corresponding quantity of coffee, or tea, since it does

not, like these, produce agitation and therefore cause sleeplessness.

According to the communications which have reached me, about 30 grm.—one ounce of Coca-Cola Syrup—is used to a glass of about 210 ccm. of the beverage. There might therefore be taken daily of this beverage 1400—2800 ccm. without any fear of injury to health, from the quantity of caffeine contained therein. Rather might the amount of liquid and of sugar taken at the same time prove injurious by impairment of the digestive activity of the stomach. As a matter of fact, such large quantities of the beverage will but rarely if ever be taken. Most consumers will undoubtedly limit themselves to less. In such cases injury is entirely out of the question. Indeed, the mis-use of Coca-Cola by taking it in excess, as so often happens with alcoholic drinks, anyway is probably not to be feared. Not only can no well-founded objection be urged against the manufacture of food products containing caffeine by the introduction of this in any form, but rather should the extension of such manufacture be regarded with favor in the interests of the public welfare. Undoubtedly alcoholic drinks belong to the most injurious class of food products, and the contest against their use and especially their misuse is thoroughly justified. This can be most successful only by seeking to replace alcoholic beverages by other and harmless food products. Among such harmless food products the most suitable with which to take up and carry through the war against alcoholic drinks are coffee, tea, cocoa, chocolate, and in general all natural or artificial food materials which contain caffeine or theobromine, on account of their advantageous and agreeable effect above described.

Carbonated waters, for example, which are taken with pleasure for their refreshing action, will not fulfill the purpose in question, since they exert none of the special effects upon the organism that tea, coffee, etc. do. In the contest with alcoholic drinks it is of importance that the food materials which are to replace them shall be harmless, contain caffeine or theobromine and also actually be consumed upon a large scale. In this way Coca-Cola may be of value.

On the basis of the preceding explanation, I sum up my opinion thus: That Coca-Cola Syrup represents a beverage containing caffeine, and that, even in the maximum quantity which may be generally taken daily, it can not, because of its caffeine content be accounted injurious to health."

DR. B. H. BROWN.

the next witness called on behalf of the Claimant and

Intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. SIZER:

Q. What is your occupation and where do you reside?

A. I am a graduate of medicine. At the present I have charge of the laboratory of the Sprague Dairy Company.

The Court: Of what place?

The Witness: At Chattanooga.

BY MR. SIZER.:

Q. Have you ever held any official position in Chattanooga?

A. I was City food inspector three years.

Q. When did your connection as City food inspector cease?

A. In August, 1910.

Q. Was it at that time you went with the Sprague Dairy Company?

A. Yes, sir.

Q. You say you have taken the degree of Doctor of Medicine?

A. Yes, sir.

Q. Have you ever practiced medicine, and if so, to what particular branches have you devoted yourself?

A. I never practiced. The first three years after graduation I was in New York doing clinical work in the hospitals of New York, and then when I came back to Chattanooga I took the position of food inspector. I have always done more or less laboratory work.

Q. As food Inspector, has it been your duty among other things to inspect the soda fountains in the City?

A. Yes, sir.

Q. In connection with the inspection work have you had occasion to observe the habits of children patronizing soda fountains as to the drinks they take?

A. Yes, sir.

Q. State what habits the children have according to your observation, as to whether they are accustomed to drinking Coca-Cola.

A. I have never seen any children, as I recall, drinking Coca-Cola—that is, under fourteen or fifteen years of age.

Q. What kind of drinks do young children usually prefer or take?

A. Soda water, ice cream soda.

Q. Did you assist in making an examination of a number of subjects in the City of Chattanooga last year, who were accustomed to the use of Coca-Cola?

A. Yes, sir.

Q. Who else participated?

A. Doctor Wert, Doctor Holtzclaw.

Q. Are they practicing physicians here?

A. Yes, sir.

Q. How many subjects did you examine?

A. One hundred.

Q. Do you remember the largest amount of Coca-Cola taken by any subject?

A. Fifteen glasses.

Q. How many took that?

A. Two said they would drink from twelve to fifteen.

Q. What was the next largest number?

A. Ten.

Q. What was the average number used per day?

A. Can I refer to my memorandum?

Q. Yes.

A. I think 2.46—no, 2.48.

Q. In selecting the subjects for that examination was it the effort of the examiners to get those who used the largest amount of Coca-Cola?

A. Yes, sir.

Mr. Miller: He has already answered the question but I shall object to leading questions.

The Court: I sustain the exception; it is well taken and I exclude this answer.

BY MR. SIZER

Q. I want you to state what kind of an examination you subjected those one hundred to.

A. They were given the same examination as those in Atlanta by Doctor Roberts, Boland and Paulin.

Q. Was Doctor Roberts present during the time that was conducted?

A. Not during the entire time. He was here part of the time.

Q. Can you state what the details of the examination were?

A. One hundred males of an average age of 24.57 years.

Q. What was the oldest man?

A. Fifty-six.

Q. And the youngest?

A. Fourteen.

Q. You say these were all males?

A. Yes sir.

Q. Did you try to get any females or did you have ıy difficulty in getting them, and if so explain why.
A. We did not attempt to get any females. We tried ıce and talked about it a little bit and finally decided ɔt to try to get them on account of the difficulty in get-ng them to come to the examination.
Q. Was that on account of the nature of the examina-on?
Mr. Miller: I object to his leading the witness.
The Court: Yes, the objection is sustained.

BY MR. SIZER:

Q. State what the reason was, Doctor, why it was und impracticable to get any females.
A. The examination was such itself that we did not elieve we could get them to submit to it.
Q. Now, just go ahead and state the details of that :amination, in what respects were they examined, what nd of an examination were they subjected to?
A. The name, the occupation, age, sex, insurance, ımber of policies, date, insurance total amount, wheth- they had been refused insurance or not, if so, date of fusal and what reason assigned, how long they had een using Coca-Cola, the amount daily, whether they used offee, cocoa or alcohol, or tobacco, and other stimulants. s to how Coca-Cola affected them, as to whether or not ıey were in perfect health so far as they knew at the me of the examination, as to whether any of them had ıd serious illness in five years previous to the examina-on.
Q. And these were all questions that were submit-d to the subjects?
A. Yes, sir; and the medical examination was—ame, occupation, apparent age, appearance as to health, spiration, girth of chest at rest, full inspiration, forced xpiration, girth of abdomen, weight, height, tempera-ure, pulse rate, regularity, quality, blood pressure, sys-olic and diastolic, reflexes—knee jirk, abdominal reflex eaction, eyes, light, distance, Rhomberg's symptoms, ubject ataxic headaches, causes of headaches, any other erve defect, any disease or abnormality in brain or ner-ous symptoms, heart or blood vessels, lungs or respira-ory tracts, stomach or other abdominal organs, kidneys, heumatism or gout. Then the urine was examined and he specific gravity taken, whether it contained albumen r sugar or not,sediment, crystalline, casts, and other ele-ients.
The Court: Omit any matter as to the insurance pol-

icies; as I have ruled in the case of the other witnesses I rule in the case of this witness and exclude it.

The Witness: The average amount of use of Coca-Cola, —I mean, the average length used of Coca-Cola, length of time, 7.31 years. Average number of drinks per day, 2.48. Sixty-nine of the hundred used coffee, two cocoa, 57 alcohol, 22 tea, 80 used tobacco and 43 used alcohol, coffee and tobacco. On 76 it had no effect whatever. Eleven stimulated, 8 kept awake if used at night, one it made nervous if he drank more than five drinks per day; one it made nervous if he drank more than eight per day, and one made nervous if he drank more than three, and one made nervous and destroyed his appetite if it was taken before meals, but if taken after meals, no effect whatever.

Q. All right; now go ahead.

A. Thirty-four of the one hundred used Coca-Cola for ten years or more, and they used it at an average of 2.6 drinks per day. The average temperature of 34 was 98.4 and the average pulse was 86.6.

Q. State whether or not these are normal, or not.

A. I think so. The average temperature of the entire one hundred was 98.9, the average pulse 85.24, the average respiration 20.8, and the average specific gravity was 10.20. Albumen was found in one of the urines.

Q. The specific gravity of the urine?

A. Yes, sir.

Q. Is that normal?

A. Yes, sir. Albumen was found in one of the urines, was found in one of the hundred. This man had gonorrhea at the time and it was demonstrated by the microscope. Sugar was absent in the entire one hundred.

Q. Now as to the result of these examinations, Doctor, did you find any one of these subjects suffering from any complaint, ailment or physical condition that could in any way be attributed to the use of Coca-Cola?

A. No, sir.

Q. Now, who approached you to make this examination on behalf of the Coca-Cola Company?

A. Mr. E. Y. Chapin.

Q. When you were first approached to make them, state whether or not you were reluctant to enter into it, and if so, for what reason?

A. I did not care to go into it.

Mr. Miller: I object to his going into that—he made the examinations.

The Court: What is the purpose?

Mr. Sizer: To show this, that at first Doctor Brown was reluctant to undertake the work for the reason that he

thought the result might not be favorable and he was instructed to go on and make the examination and report the results regardless of whether they were favorable or not, so it would show there was no purpose in getting favorable testimony.

The Court: The question of his reluctance is immaterial. The question about instructions I do not rule on.

BY MR. SIZER:

Q. What instructions were you given by Mr. Chapin as the representative of the Coca-Cola Company with reference to making these examinations and reporting on them?

Mr. Miller: I object to that. He can state what he did and whether or not he colored his reports in any way, but as to instructions, that is a matter of private information.

The Court: I overrule the exception.

BY MR. SIZER:

Q. State now, Doctor.

A. That they were anxious to know if it was producing harmful results, as anxious as anyone else, and if it was, they wanted to stop the sale of it.

Mr. Miller: I object to that as self-serving.

The Court: That statement is self-serving. The question was as to the instructions that were given you.

The Witness: To make as thorough an examination or examinations as possible, and to determine whether or not it was harmful.

BY MR. SIZER:

Q. Have you had any personal acquaintance with people who drink Coca-Cola?

A. Yes, sir, I know a great many people who drink Coca-Cola.

Q. Is it largely consumed in Chattanooga?

A. Yes sir.

Q. At soda fountains and in bottles also?

A. Yes sir.

Q. Have you ever seen any people among your acquaintance suffering from any derangement or ailment that could be traceable to the use of Coca-Cola?

A. No, sir.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What had been your general duties and what were they at the time you made this examination, aside from the

examination itself, Mr. Brown?

A. What was that?

Q. I say, what had been your general duties for the last three years or five years, and what were they at the time you made these examinations, except when you were making the examinations?

A. Food Inspector of the City of Chattanooga.

Q. Now, you were paid by the City to inspect foods throughout the city?

A. Yes, sir.

Q. And as a consequence you do not lay around soda fountains very much?

A. No, sir; not very much.

Q. What would be the difference, if any, in the physiological action or results if you should introduce caffeine into bread or canned beans or cabbage, or anything of that kind, than putting it in a beverage?

A. I do not know that there would be any difference?

Q. In your opinion you say there would not be any?

A. From the effects of the caffeine itself ——

Q. As respects to physiological action on a person who consumed it, would there be any?

A. From the effects of the caffeine, is what I said.

Q. And so far as putting it in milk, it would be precisely the same as putting it in carbonated water?

A. I do not know as to that.

Q. Well, that is your opinion?

A. I don't know.

Q. Do you mean to say that with this extensive experience of yours as an inspector, you do not know about that?

A. I never put any caffeine in milk and never saw any put in milk.

Q. You were food inspector here at that time?

A. Yes, sir.

Q. Would you have prohibited its use in milk or not?

A. Yes, I would.

Q. Now, these subjects that you examined, you say, in part, were under the supervision of Doctor Roberts. Was that the same Doctor Roberts that testified here the other day?

A. They were not under his supervision.

Q. You say they were not?

A. He was present during a part of the examination.

Q. I say, is that the same Doctor Roberts who came from Atlanta up here on behalf of The Coca-Cola Company and started these examinations?

A. Yes, sir.

Q. These subjects were engaged by Fred Shepard down

here at fifty cents a head, and Fred got twenty-five cents for getting them to come up to you, and the subject got the other twenty-five cents for coming up and being examined?

A. I do not know as to that. The subjects were sent there by Mr. Shepard. I don't know whether he paid them or not.

Q. That was Fred Shepard?

A. Yes, sir.

Q. A man who is generally known as Fred Shepard?

A. Yes, sir.

Q. And Fred down on the street there about the police station somewhere getting fellows to come up, and as they would come up ——

A. (Interrupting) Well, he sent, or rather they came in, I don't know who brought them. They were all classes of men and all occupations, — bankers, manufacturers and laborers.

Q. What bankers did you examine in that connection?

A. I can't recall the names. I can look at the list if you permit me to do so; they were men who were bank tellers.

Q. You did not pay the subjects yourself?

A. No, sir.

Q. What is the normal temperature, Doctor?

A. 98.6, but it varies at different times of the day.

Q. What is the normal respiration?

A. Twenty, — eighteen to twenty.

Q. Eighteen to twenty?

A. Yes, sir.

Q. Does that vary with age, or what?

A. Yes, sir; it varies with age.

Q. Is that the only condition that affects it outside of ill health?

A. No, sir; exercise, heat, and a great many things affect it.

Q. Do you know what the normal blood pressure is?

A. Which, the systolic or diastolic?

Q. Both.

A. The systolic is 1.10 to 1.35 by the Erlanger thermometer sphygmomanometer.

Q. And what was the other?

A. The diastolic, .65 to .95.

Q. What time of the year were these examinations of yours made?

A. In July.

Q. What is the normal pulse, Doctor?

A. The normal pulse, — well, it varies according to age.

Q. Well, in man, I am talking about; you examined men?

A. Seventy to 80 — 72, probably the average would be taken as 72.

Q. In many people it is under 65, is it, or as low as 65?

A. Yes, sir.

Q. And you say that normal is about 70?

A. Seventy to 80.

Q. Didn't you say about 72?

A. Yes, sir.

Q. And the average you state you found to be about 85?

A. Yes, sir; but the conditions were such that you would expect the pulse rate to be of that height.

Mr. Miller: Yes, I think so, but stand aside.

Mr. Sizer: Hold on.

REDIRECT EXAMINATION,
BY MR. SIZER:

Q. What conditions were you referring to?

A. The fact that they climbed twenty-five or thirty steps to get into the office and were out of breath more or less, and more or less excited — never had seen a sphygmomanometer before, and when you put it on the arm they thought it was some electrical instrument.

Q. Would those things be calculated to raise the blood pressure?

A. Yes, sir.

Q. Doctor, as Food Inspector would you have permitted anyone to put caffeine in milk?

A. No, sir.

Q. Would you have done that any more than you would have permitted anyone to put sugar or salt or flour in milk?

A. No, sir.

Q. Milk is a well known substance and putting a foreign substance in it would be an adulteration of it, would it?

A. Yes, sir.

Q. What time of the day were these examinations conducted, about?

A. They were taken at about four or five in the evening.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Doctor, did I understand that these subjects were so affected by the conditions that you saw there that you could not judge what their normal condition was?

A. Well, very often people when undergoing examinations of any kind are more or less excited — it causes ex-

citement and causes the pulse rate to increase, and you have to take it four or five times in order to get an accurate pulse rate.

Q. Now then, you took this, as I understand you, you examined each one of these and then turned him out when you got through, let him go?

A. Yes, sir.

Q. And do you consider these conditions reliable under which to make the test?

A. Yes, sir.

Q. And you made one examination only?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Were the digressions from normal such as to affect the blood pressure, the respiration or the heart beat, in any of these subjects — was it such as to indicate any derangement or impaired condition of the system?

A. No, sir; I think not.

Mr. Miller: I think that has been gone into in chief.

The Court: Well ——

(Witness excused.)

DR. C. HOLTZCLAW,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Doctor, are you a practicing physician in Chattanooga?

A. Yes, I am.

Q. How many years have you practiced medicine?

A. Thirty years.

Q. Did you participate with Doctor Brown in making the examinations to which he has just testified?

A. Yes, sir.

Q. As a result of these examinations, was any impairment or derangement of the system or physical condition of any of those subjects found which could be traceable in any way to the use of Coca-Cola?

A. I think not, to the best of my knowledge and belief.

Q. Have you had occasion among your patients and clients to observe people who were accustomed to drinking Coca-Cola?

A. I have frequently.

Q. Have you ever known a case of disease or ailment of

any kind that was traceable to the use of Coca-Cola by people?

A. I have not, of but one instance, and that was so complicated that I really could not say positively that it was from Coca-Cola.

Q. What was that case?

A. That was the case of an old maid stenographer who lived by herself, and when you get a woman living by herself, they don't cook, they live on tea, coffee and crackers, and then during the day time she would drink a great quantity of Coca-Cola, tea and coffee and crackers, they were her sustenance, and then she got indigestion very badly and she had to cut it out, or I stopped her from drinking Coca-Cola, coffee and tea. She made a rapid recovery.

Q. You say she made a rapid recovery?

A. Yes, as soon as I stopped the excessive use of these substances.

Q. That was as soon as you stopped the excessive use of them?

A. Yes, sir; but I could not say positively that it was due to Coca-Cola. That is the only case that I have ever peremptorily stopped the use of Coca-Cola in.

Q. Are you able to testify, Doctor, as to the habit of children in respect to drinking Coca-Cola?

A. Children do not like Coca-Cola very much in the way of soft drinks — they drink something sweet. I have seen children, though, drink Coca-Cola, but I have never noticed any deleterious effects at all from it.

Q. Have you had any personal experience with the use of caffeine-containing beverages?

A. I have; I drink Coca-Cola.

Q. And what else — coffee or tea?

A. I don't drink coffee or tea, because it gives me indigestion, but Coca-Cola does not give me indigestion. It is rather helpful, in fact.

Mr. Sizer: You may cross-examine him.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Doctor, your specialty is surgery, is it not?

A. For the last three or four years — before that, however, I taught therapeutics in a medical college for a number of years.

Q. And these subjects were examined at that time, — Fred Shepard sent them to the police station down here for examination, and you don't know, of course ——

Mr. Sizer: I object to that; it has not been shown they

were examined in the police station.

The Witness: Neither were they all sent by Fred Shepard. Some came up there of their own free will and accord, and some came at the instigation of Mr. Thomas, and some at my instigation.

BY MR. MILLER:

Q. What about those that were sent by Shepard, where did they come to?

A. Where did they come to?

Q. Yes.

A. They came to Doctor Brown's office in the City Hall.

Q. Where was that?

A. I am sure I have not a plan of the City Hall. I do not remember the number of rooms.

Q. Is that over here connected with the police headquarters?

A. Why, I am not familiar exactly with where police headquarters are — they are, I think, at the old Market House over here. You have got the police headquarters and the City Hall rather confused, I should think. The City Hall property is in the new City Hall, which is right near the present building that we are in. The police headquarters are over on Georgia avenue, between Georgia avenue and Eighth street.

Q. Between Georgia avenue and Eighth street?

A. Over on Georgia avenue, just this side of Eighth street. The City Hall is next to this building here.

Q. In which of these buildings did you conduct this examination?

A. The City Hall.

Q. And that is the new City Hall right here near the present building, is that right or not?

A. Yes, sir; the City Hall. The other building is police headquarters.

Q. Well, I wanted to know whether it was over on Eighth street or on Georgia avenue between Eighth and Ninth streets, or whether it was over on Eleventh street.

A. It was in the City Hall. It does not make any difference where the examinations were made; I offered them my office for that purpose.

Q. I agree with you on that — I am thoroughly in accord with you about that. I ask you whether or not in making examinations of these persons that came up and in basing your opinion, or in forming your opinion, you based it on what they told you as to the consumption of tea and coffee and of tobacco and of alcohol and of Coca-Cola?

A. Yes, sir; I never saw any of them drink it.

Q. And you never frequented soda fountains or other places where Coca-Cola is dispensed in Chattanooga for the especial purpose of making observations as to what class of people take the most of it, either, did you, Doctor?

A. I have stood by drug stores several times and noticed that particular fact — I have been at R. J. Miller's drug store, Voigt's drug store and one or two others. And I find that all classes of people drink Coca-Cola, women, children and men from all walks of life.

The Court: What kind of people were these that were offered for examination with reference to their occupations?

The Witness: The appearance, you mean?

The Court: As compared with the average.

The Witness: They were the average people from every walk of life. I presume the majority of them were men who worked or who did more or less manual labor. There were eight or ten, if I mistake not, who were operatives in the hosiery mills or spinning mills, and there were plumbers, electricians, men that you meet in the ordinary, everyday walk of life. They were not selected, but picked up at random, so my understanding was.

BY MR. MILLER:

Q. Picked up at random by this man Shepard and delivered up there by him?

A. By various parties. Several parties got men to come up for examination. Not particularly Mr. Shepard. I understood that Mr. Shepard was employed because the balance of us did not have time, that he was employed to do this work, just like you would employ anybody to do anything else.

REDIRECT EXAMINATION,
BY MR. SIZER:

Q. Is that a summary that you have there of your examinations showing the different vocations that these subjects followed?

A. Yes, sir; I think Doctor Brown has it.

Q. I would like to have Doctor Brown state that. Have you a copy of that summary?

A. I don't know whether I have that particular feature about it. I have not that with the different avocations.

Q. I will ask you, Doctor, if that is a summary of the results of your examination.

A. I think so.

Q. Does that show the occupations pursued by the different subjects who were examined?

General Cox: It just shows what that subject told them

in place of what they were?

The Witness: Yes, sir. I can give you the exact figures — can not, I mean, except the largest number of any one class of people, as to their business, was some eight or ten who worked in the hosiery mill.

BY MR. SIZER:

Q. This list you have here gives the occupation of each one of the subjects, but you have not got it summarized?

A. Yes, sir. I think Doctor Brown has the whole business summarized.

Mr. Sizer: We offer that list in evidence.

(The list was thereupon marked Exhibit 1 to the testimony of Dr. Holtzclaw.)

Mr. Miller: I just want to ask one question about that.

BY MR. MILLER:

Q. In making up that paper or summary, Doctor Holtzclaw, the statement that the men made that presented themselves for examination was taken as being true as to their occupations?

A. Yes, sir. Well, in fact, I knew quite a number of them. I knew personally two-thirds of the people. I knew it was a fact that they did work at that, they had been patients of mine, some of them, and I knew as a matter of fact what their avocation was.

Q. Will you kindly call off from that paper before you leave the stand and tell us how many of those you knew — just check them off. I have no objection to the filing of the paper.

The Court: Does that give the names of the persons?

The Witness: This does not give the names of them. If you will get that ——

Mr. Sizer: I will get that.

The Witness: If you have a list I could tell you exactly.

Mr. Miller: Well, what is that list you have?

The Witness: It is the occupation, the ages, the sexes and whether they have any weakness or not, and amount of Coca-Cola they use, the number of years they have used it, amount daily, whether they drink excessively cocoa, alcohol, coffee, tea, use tobacco.

BY MR. MILLER:

Q. Well, as I submit, it does not give any names — you say it does not?

A. No, sir; just a summary without the names.

Q. So you don't know whether that was so — whether that is the occupation of the people that were actually ex-

amined by you or not because the names are not there to show?

A. Well, I could not swear it is, but my belief is it is because we made all of these together and this other part we had mapped out and then this should be summarized.

Mr. Miller: Before that is filed I would like to have the names of the people filed along with it.

Mr. Sizer: We will get that as soon as Doctor Brown comes back.

The Witness: I said that possibly two-thirds at least were known to me and that I knew their avocations.

Mr. Miller: Well, that is the third time you have made that statement and I suppose it must be true.

The Witness: And it is the same way about the City Hall.

(Witness excused.)

J. W. JOHNSON,

the next witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you a practicing physician?

A. I am.

Q. Do you know among your patients and acquaintances any people who drink the beverage known as Coca-Cola?

A. I do.

Q. Have you ever known of any disease or ailment due to the use of Coca-Cola?

A. I never treated such.

Q. Have you ever known of any such case?

A. No, sir.

Q. Do you know about the habit of children with respect to taking Coca-Cola?

A. No, sir; I do not.

Q. You have not observed that?

A. No, sir.

Q. Are you the examiner for any insurance company — medical examiner?

A. Yes, sir.

Q. For what company?

A. The Volunteer State.

Q. What is the purpose of the examination made by the medical directors of insurance companies?

A. To find out anything that would affect the longevity of the applicant.

Q. Among other inquiries made in the course of the physical examination, are there or not questions propounded as to the use by the applicant of certain substances that would affect the health?

A. There is.

Mr. Miller: We don't think this matter of insurance is competent. We move to exclude the previous answer and I object to this question and answer.

Mr. Sizer: This insurance examination is the result of an accumulated experience of a long period of years by medical experts, and the examinations are made for the purpose of determining the habits of the applicant as to the use ——

The Court: I overrule the exception so far as you are asking for the custom of insurance companies in inquiring as to certain things.

BY MR. SIZER:

Q. Are any inquiries made in that connection as to the use by the applicant of caffeine-containing beverages?

Mr. Miller: I object to that.

The Court: I overrule the objection.

The Witness: There are none.

BY MR. SIZER:

Q. What kind of substances are inquired about on this examination?

Mr. Miller: I object.

The Court: I overrule the objection.

The Witness: The use of alcohol, morphia and any narcotic.

BY MR. SIZER:

Q. Do you personally use any caffeine-containing beverages?

A. Yes, sir.

Q. What?

A. I use coffee and sometimes take a drink of Coca-Cola.

Q. What is the extent of your use of coffee?

A. In the winter time, I generally take two or three cups of coffee a day.

Q. Has your use of caffeine-containing beverages ever affected your health?

A. Not that I know of.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. To what extent do you use Coca-Cola?

A. Some days I do not take any, and the days when I

drop in the drug store I will probably take one or two glasses of Coca-Cola, it just depends on the surroundings.

Q. Is it not true that caffeine is a narcotic?

A. How is that?

Q. Is not caffeine a narcotic?

A. I should think that caffeine was a stimulant.

Q. Now, is it true that in the Sims Building, where your office is located, that there is a soda fountain, and that commencing at 8:30 in the morning until ten or eleven o'clock, that fountain is surrounded by girls and boys who work in that building who are ordering Coca-Cola and drinking it and consuming it?

A. I see several in there when I go in there and come out.

Q. When you take coffee, you take it with your meals, don't you?

A. I do.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. That place in the James Building, is it an attractive place to take drinks?

A. It is right on the street where everybody comes in and goes out.

Q. Anything else sold there?

A. Yes, sir; a tobacco stand and nearly everything in that line.

BY MR. MILLER:

Q. Girls don't take any tobacco in there, do they?

A. Not that I know of.

BY MR. SIZER:

Q. But girls drink various kinds of drinks in there?

A. Yes, sir.

(Witness excused.)

DR. B. S. WERT,

the next witness called on behalf of the claimant and intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You are a practicing physician here?

A. Yes, sir.

Q. How long have you practiced?

A. About thirty years.

Q. Did you participate with Doctor Brown and Doctor Holtzclaw in making the examination to which they have testified?

A. Yes, sir.

Q. Did you personally know a number of the subjects that you examined in that connection?

A. I did.

Q. Can you state about what proportion of them were personally known to you?

A. No, sir; I could not, but I would think I knew about 25 or 30 of them.

Q. From how many vocations were those subjects selected?

A. I do not know that I remember that, but I think there probably at least 30 or 40 different vocations, but I am not sure of that.

Q. Were there subjects there who followed sedentary vocations?

A. Yes, sir.

Q. Bank employes and clerks in stores.

A. That was my understanding, yes.

Q. As a result of those investigations, was any one of those subjects found to be suffering from any complaint or ailment that could be traceable to the use of Coca-Cola?

A. No, sir; I don't think so.

Q. Have you personally among your acquaintances and patients been thrown in contact with people who did use Coca-Cola?

A. Yes, sir.

Q. Have you ever seen among your patients or acquaintances any person suffering from any disease or ailment that resulted from Coca-Cola?

A. No, sir; no diseases or ailments. I have seen some that I thought likely were taking a little too much of it, but you could not say they were diseased.

A. Have you observed the habits of children with respect to taking Coca-Cola?

A. Yes, sir.

Q. What is that habit?

A. My observation is that children do not use it a great deal.

Q. What kind of drinks do they prefer?

A. Children as a rule like cream soda.

Q. You say you have seen people who you thought were taking too much of Coca-Cola: have you also seen people whom you thought were taking too much of other things?

A. Sure.

Mr. Miller: I object to this cross-examination of his own witness.

The Court: The objection is sustained and the answer is excluded.

BY MR. SIZER:

Q. Have you or not seen people among your patients and acquaintances who took too much of various things?

A. I have.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. I notice in this list presented here, that a number of these people were bottlers, that is, they gave their vocation as bottlers. Do you know what kind of bottlers they were?

A. No, sir, I do not know what kind of bottlers they were.

Q. Others were soda clerks, that meant the men who served out the drinks at soda fountains?

A. Yes, sir.

Q. You only took the statement of these people, except insofar as you had personal acquaintance with them?

A. Yes, sir; that is true.

Q. Where was that examination held?

A. In the City Hall, the adjoining building.

Q. The new City Hall?

A. Yes, sir.

Q. When was it?

A. I think it was last July, July 10th.

(Witness excused.)

E. DUNBAR NEWELL,

the next witness called on behalf of the Coca-Cola Company, first duly sworn, testified as follows, being of lawful age:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you a practicing physician in this city?

A. I am.

Q. How long have you practiced here?

A. Two years.

Q. Before you commenced to practice here, where did you live and practice?

A. Louisiana.

Q. How long have you practiced altogether?

A. Thirteen years.

Q. Do you know the beverage called Coca-Cola?

A. I do.

Q. Do you know the extent to which that is sold as a drink in this vicinity?

A. Yes, sir.

Q. Is it extensively sold?

A. Yes, sir.

Q. Have you had occasion to observe among your pa-

tients and acquaintances people who have used it?

A. I have.

Q. Have you ever seen any case of any ailment or disease resulting from the use of Coca-Cola?

A. I have not.

Q. Is Coca-Cola, from your observation and experience of it, a habit-forming substance?

A. It is not.

Q. What about the use of it by children, have you observed as to that?

A. I have observed that they do not take it.

Q. Do you personally use caffeine-containing beverages?

A. Yes, sir.

Q. What?

A. Coffee, tea and Coca-Cola.

Q. To what extent?

A. I drink one cup of coffee a day and two glasses of tea in the summer time and sometimes during the winter, and I drink Coca-Cola very spasmodically, and sometimes two or three a day and sometimes I don't drink it for a week or even a month.

Q. What effect did it have on you?

A. I never noticed any effect except when I am tired it stimulates me. When I am not tired, it don't seem to have any effect at all.

Q. Do you drink Coca-Cola as much in the winter time as you do in the summer?

A. I do not.

Q. Is that true of Coca-Cola generally, that people drink more in the hot season than in the winter?

A. Yes, sir.

Q. You lived in Louisiana before you came here?

A. Yes, sir.

Q. What had you observed down in that country with respect to the use of Coca-Cola in the winter months?

A. In most of the small towns in Louisiana, they only run the soda fountains six months in the year, and the other six months they do not run, and when the fountain is not running, they don't drink Coca-Cola at all.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. How long have you known the drink Coca-Cola being sold and dispensed?

A. Since 1900. I never noticed it before that time.

Q. How many physicians are there in Chattanooga?

A. I think 150.

(Witness excused.)

DR. E. E. REISMAN,
the next witness called on behalf of the claimant and intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you a practicing physician?
A. Yes, sir.
Q. Of how many years standing?
A. Graduated May 1st, 1906.
Q. How long have you been practicing in Chattanooga?
A. About three years.
Q. Have you been thrown in contact among your patients and acquaintances with people who use Coca-Cola?
A. Yes, sir.
Q. Have you had occasion to observe the effects of it on them?
A. I have.
Q. Have you ever seen anyone who had any disease or ailment that could be traceable to the use of Coca-Cola?
A. No, sir; I never have.
Q. Have you had occasion to observe the use of Coca-Cola by children?
A. I have never seen but one child that professed to like Coca-Cola. That is the only one I have seen.
Q. Is that child a member of a family you practice in?
A. Yes, sir.
Q. Does the use of Coca-Cola affect his health in any way?
A. He is about a fine a specimen as you would want to see.
Q. Do you personally use any caffeine-containing beverages?
A. Yes, sir; I drink coffee and Coca-Cola occasionally.
Q. About how much do you drink?
A. I have taken coffee ever since I was a very little fellow up to the present time, and I take three cups a day, one after each meal regularly, and I drink Coca-Cola quite frequently in the summer, because it is a cooling, refreshing sort of drink. I do not drink it as much in the winter.
Q. How many drinks of Coca-Cola would you take in the summer?
A. One or two, or three, perhaps.
Q. What effect does it have?
A. I have never noticed any effect except mildly stimu-

lating. That is about the only effect I have noticed.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. How old is the child to which you refer?

A. Nearly five years old.

Q. Are you acquainted with Doctor S. S. Cohen, who was called for the Government the other day, or have you read his treatise on therapeutics?

A. I met Doctor Cohen while he was here, but I never read his treatise.

Q. You know from reputation that he is very reliable and classes as a standard authority?

Mr. Sizer: I object to that. I don't understand why they want to examine this witness as to Doctor Cohen's qualifications.

The Court: I have ruled that one man might be asked if another witness was competent to express an opinion.

BY MR. MILLER:

Q. I ask you whether or not Doctor Cohen is regarded as a reliable and reputable authority?

The Court: That is not the question. You may ask him the question as to whether Doctor Cohen is competent to express a medical opinion.

The Witness: Yes, sir; as teacher and professor in a very excellent medical college considered good authority.

BY MR. MILLER:

Q. One of the largest medical schools in the country?

The Court: That question is excluded.

BY MR. SIZER:

Q. Is not Doctor Cohen regarded as having rather radical and erratic opinions on some subjects?

The Court: That is excluded. We are not going to have these witnesses clashing.

Mr. Sizer: If the other side can get in commendatory opinions, we should be allowed to show the adverse.

The Court: I am limiting it to one point; that Doctor Cohen was competent to express an expert opinion, and I exclude everything else.

(Witness excused.)

DR. HOBART A. HARE,
recalled to the stand, testified as follows:

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Is it not true that in your search of the literature,

you have not found what is known as the Zenetz and Allard cases, which are reported respectively as cases of caffeine and Theocin poisoning, repudiated or questioned by any standard medical writer?

A. I have not found them repudiated by any standard medical writer except myself.

Q. No one except yourself?

A. No, sir.

Q. Did you question or repudiate them in your book?

A. No, sir; I did not. I did not know about them when I wrote that edition of the book.

Q. Is it not true, also that Doctor Schmeideberg refers to and cites the Zenetz case on page 97 of his treatise?

A. I do not remember it, but I am willing to admit and say it is there if you say so.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Do you know of any medical writer that refers to the Zenetz and Allard cases at all?

A. I do not except that one just read.

Q. You say you didn't know about that?

A. I took Mr. Miller's word for it it is in there, but I have not seen it.

Mr. Miller: I pass you that authority, and to refresh you, I will ask you if Kobert does not refer to those cases?

The Witness: I am not able to answer that because I am not sufficiently familiar with Kobert.

BY MR. MILLER:

Q. Does not Potter?

The Court: I think that is a matter in chief and is incompetent here, and I exclude all the evidence of the authorities referring to those cases now.

(Witness excused.)

Mr. Hirsch: There was some question asked Doctor Wesener about some translation of Gademer, I believe.

Mr. Miller: My translation was correct, was it not?

Mr. Hirsch: Yes, but there was some question as to a question that was asked of Doctor Wesener. Here it is on page 1702: the question was asked Doctor Wesener:

"Q. Will you give the reference to Gademer?

A. Gademer's work on Toxicology.

Q. That forty-five grains may be consumed daily without harm?

A. He said those amounts have been taken daily without producing noticeable results.

Q. Is he the only authority you can cite on that

point?

A. I think there are some others. I have seen them but I do not recall them now, and so forth."

The Court: How did that occur?

Mr. Hirsch: On direct examination. Here on page 1650:

"Q. Now, as a result of that tolerance, Doctor, right there, would the results of that be that the animal that had acquired a tolerance for a substance could take it with less effect than an animal which had not acquired that tolerance?

A. That would be true in most instances. That would hold true in most instances. But I would further state that in answer to your previous question, that a rabbit has the power to change caffeine — a rabbit's economy has the power to change caffeine rapidly and quickly into the less methylated products, and possibly also xanthine — simple xanthine products, and the same process also takes place in the economy of man. These rabbits were given large doses, equivalent to 50 grains to a man weighing 150 pounds, and I know in the literature where such doses of caffeine have been taken by man, and I also know where statements are made in the literature that 45 grains can be taken daily without causing injurious effects. That being the case, I would say that the rabbit has about the same tolerance to caffeine that man has, based on that hypothesis and deduction."

That was objected to by Mr. Miller, the objection was sustained and the answer was excluded.

The Court: Then how does it get in?

Mr. Hirsch: Finally on Mr. Miller's cross-examination he asked him about Gademer. Mr. Miller asked him about it himself.

The Witness: I don't think I used Gademer by name.

The Court: Then I exclude on cross-examination the reference to Gademer if I excluded it on direct examination. I certainly would exclude it on cross the same as on direct.

Mr. Hirsch: He stated that he based it on literature and Mr. Miller was searching him.

The Court: But the answer on which he based it was excluded.

Mr. Hirsch: Yes.

The Court: Then I exclude it again.

Mr. Miller: I do not know that there is anything I can say that would enlighten your Honor. When I called for the reference on which he based his statement ——

The Court: But I had already excluded the statement, it appears.

Mr. Miller: If they exclude the entire statement, all right; but if they just strike out that based on literature, I could cross-examine.

The Court: What was the exact motion to exclude on direct examination?

Mr. Hirsch (reading): "I move to strike out that portion of the answer that deals with literature and supports his statement, because it is not proper matter for him to state in chief." Mr. Miller made that objection. (Reading): "The Court: The exception is sustained and the answer as to what the literature contains is stricken out."

The Court: Does that exclude the entire statement about the forty-five grains?

Mr. Miller: He based that on literature.

Mr. Sizer: Yes, sir, he answers generally.

The Court: He does not make any statement of his own knowledge or that he knew about the forty-five grains being administered?

Mr. Sizer: No, he does not.

The Court: With that understanding, then, it is all excluded and the cross-examination is included, too.

Mr. Sizer: He didn't make any statement of the amount except that he stated from the literature he understood, etc.

The Court: Then it is all excluded; I mean, the portion that is excepted to.

(Witness excused.)

T. P. SHEPARD,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your occupation?
A. Lawyer.
Q. You live in Chattanooga?
A. Yes, sir.
Q. How old are you?
A. Thirty-three.
Q. Do you drink Coca-Cola?
A. Occasionally, now.
Q. About how much do you drink now?
A. I have no way of telling how much I drink; some days I drink one or two glasses and some days I do not drink any.

Q. At any time in your life did you drink considerable quantities of Coca-Cola?

A. Yes, sir; in 1902 and '03 I was connected with the Coca-Cola bottling plant at Houston, Texas, during the summers of those two years, and I drank a considerable quantity.

Q. How much did you drink during the hot season?

A. I drank on an average any where from eight to fifteen bottles a day.

Q. What effect did it have on you?

A. None except that it slacked my thirst.

Q. That was during the two summers?

A. Yes, sir; I went to Texas in July, 1902, and stayed there during that summer, and then went back next summer in March or April, and stayed all summer.

Q. Did you keep up that same rate of consumption in the winter months?

A. No, sir.

Q. Did you have any desire from that time on to continue taking that amount?

A. No, sir; none whatever.

Q. It didn't form any habit?

A. Not at all. When I left the Coca-Cola business I quit drinking it except occasionally when I would go into a soda fountain and call for Coca-Cola because that was the drink I would think of.

CROSS-EXAMINATION
BY MR. MILLER:

Q. Has Coca-Cola any smell to it?

A. The syrup has, I suppose, some sort of syrupy smell but I could not discribe it.

Q. All syrups have more or less smell; I wondered if this had any distinctive odor as compared with other syrups.

A. None that I recall.

Q. You have a very much younger brother than you are?

A. I have four of them.

Q. But one is a baby brother?

A. I have a brother seventeen years old.

The Court: I think that is about enough of individual experience, but you can have one or two more. We will never get through with witnesses on that line, and I will allow that to proceed with the physicians who have noticed as to other parties.

General Cox: I thought it was to be confined to ten on a side.

Mr. Sizer: No these are not experts.

The Court: How many more have you?

Mr. Sizer: We want to examine Mr. Mahoney because he has been examined for insurance and he was one of the subjects who was examined.

(Witness excused.)

JOHN J. MAHONEY,

the next witness called on behalf of the Claimant and Intervener, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your occupation?

A. General manager of the Cahill Iron Works.

Q. What is your age?

A. Fifty-three next June.

Q. Were you examined by Doctor Brown, Doctor Wert, and Holtzclaw last summer?

A. Yes, sir.

Q. Do you drink Coca-Cola?

A. Yes, sir.

Q. To what extent?

A. In the summer I drink about four bottles a day and in the winter time I average about one every day except I don't drink it on Sunday. It is not convenient to get it.

Q. How long have you been drinking it?

A. Ever since they have been bottling it in Chattanooga.

Q. Do you remember how long that is?

A. I think about ten or twelve years.

Q. What effect does it have on you?

A. None that I know of.

Q. Has it ever formed a habit with you?

A. No, sir; I never drink it except I am in Chattanooga. Sometimes I go to Philadelphia and New York and I am away for several weeks and never think about taking it.

Q. What is your condition of health?

A. I think very good. If the Doctors had to depend on me they would be in a pretty bad shape.

Q. What did the three physicians who examined you last summer say about your health?

(Question objected to and objection sustained.)

Q. Have you been examined recently for life insurance?

A. Not very recently.

Q. How long ago?

A. Ten years.

Mr. Sizer: That is all.

CROSS-EXAMINATION
BY MR. MILLER:

Q. The drug stores are open on Sunday here?

A. Yes, sir.

Q. This Coca-Cola, if it has any effect on you, has had the same effect ever since you have been drinking it—that is, it has no different effect now from what it had when you first began drinking it?

A. No, sir.

Mr. Sizer: We do not want to put any more witnesses on if your Honor does not want us to; we have some fifteen or twenty witnesses along that line.

The Court: Are they persons who were examined by these Doctors?

Mr. Sizer: I think most of them are; at least, several.

The Court: You may examine six of those persons who were examined by the Doctors. There must be some limitation on the examination of individual cases.

(Witness excused.)

J. W. GLASS,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. SIZER:

Q. What is your occupation?

A. Furniture dealer.

Q. In Chattanooga?

A. Yes, sir; Whiteside street.

Q. I want to ask if you drink Coca-Cola now and what your experience with the drinking of it has been.

A. I have been drinking on an average about three bottles a day ever since 1902.

Q. What was your condition in 1902 when you first commenced to drink it?

A. I was not near so healthy as now. I was troubled with indigestion. I was not disabled from work but I did not feel right all the time. My food did not agree with me.

Q. What has been the effect of Coca-Cola on your health?

Mr. Miller: I object. He has not shown himself to be a physician.

The Court: He may state what has been his state of physical health.

BY MR. SIZER:

Q. What has been the condition of your health since you commenced taking Coca-Cola?

A. It has been good; getting gradually better all the time from the indigestion trouble, or whatever it was.

Q. Before 1902 had you made application for life insurance and been rejected?

(Question objected to by the Government and objection sustained.)

Q. Have you recently made application for life insurance and been given a policy?

A. I have.

(Question objected to by the Government and objection sustained, and answer excluded.)

Q. What is your weight?

A. About a hundred and twenty-seven, I should think.

The Court: I will allow the surgeons or physicians who examined this witness to testify on that.

Mr. Sizer: Then I will have to ask him if he was examined.

The Court: Without mentioning the result.

BY MR. SIZER:

Q. Were you examined in 1902, and if so, by what physicians?

A. Along in 1902 I was examined by Doctor Hope for the New York Life, and Doctor Abernathy for the Pheonix Mutual, or Doctor Applegate—some name like that.

Q. Have you been recently examined for life insurance?

A. Yes, sir.

Q. When?

A. Last August.

Q. By whom?

A. Doctor George R. West.

Q. Was he the only one who examined you?

A. Yes, sir.

Mr. Hirsch: We have other gentlemen who have been drinking Coca-Cola who will testify the same thing but who have not been examined by the physician.

The Court: How many of those who were examined by physicians are here now?

Mr. Hirsch. None.

The Court: Well, you can take four or five of the others.

(Witness excused.)

FRED J. PAXON,

the next witness called on behalf of the Claimant and In-

tervenor, The Coca-Cola Company, of lawful age, being sworn, testified as follows:

DIRECT-EXAMINATION
BY MR. HIRSCH:

Q. Where do you live?
A. Atlanta, Georgia.
Q. How long have you been living in Atlanta?
A. Since 1887.
Q. Do you drink Coca-Cola?
A. I do.
Q. How long have you been drinking it?
A. I couldn't tell you; probably eighteen or twenty years.
Q. What effect does it have on you?
A. Not the slightest.
Q. Do you leave Atlanta often?
A. Three or four times a year.
Q. Do you drink Coca-Cola when you are away from Atlanta?
A. No, sir. I very seldom drink it; it does not taste the same.
Q. What is the comparison between Coca-Cola you drink in the summer and winter, if any difference?
A. None at all. I drink it very irregularly.

CROSS-EXAMINATION
BY MR. MILLER:

Q. The effect has been the same on you, of the Coca-Cola, since you began eighteen or twenty years ago?
A. Yes, sir.

REDIRECT EXAMINATION
BY MR. HIRSCH:

Q. Do you drink coffee?
A. Generally about six cups a day.
Q. Has it hurt you any, so far as you know?
A. Not the slightest.
(Witness excused.)

GEORGE C. WALTERS,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Where do you live?
A. Atlanta.

Q. How long have you lived in Atlanta?
A. For eleven years.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How long have you been drinking it?
A. I should say for about fifteen years.
Q. Now give me approximately the average you take a day.
A. Well, it varies so largely—at times I will drink three or four glasses a day, and then I will go for weeks without drinking any. I generally, when I drink it, take two or three glasses.
Q. As far as you know, has Coca-Cola had any effect on you?
A. Not a bit.
Q. Do you drink coffee?
A. I am a slave to it.
Q. How much coffee do you drink a day?
A. About three cups of strong coffee.
Q. Does that have any effect on you?
A. Not so far as I know.
Q. You say that the number of drinks you take per day of Coca-Cola vary?
A. Yes, sir; very greatly.
Q. Has it any effect on you?
A. They have no effect on me.
Q. Do you drink tea?
A. Yes, sir.
Q. Does it have any effect on you?
A. It depends on the brand of tea. Ordinarily it does not but there are some brands of tea that are rather strong.
Q. Do you drink Coca-Cola when away from Atlanta Mr. Walters?
A. Yes, sir, I do in one place. I get very good Coca-Cola in Richmond Va., but after I pass that point I never think of it.

CROSS-EXAMINATION
BY MR. MILLER:

Q. Do you mean to say there is a difference between the Coca-Cola you get in Chattanooga and that which is sold in Atlanta?
A. I have not been fortunate enough to be in Chattanooga to test the Coca-Cola, but I have found a difference in Coca-Cola between the places I have mentioned and some other places.
Q. And where Coca-Cola is dispensed there is a dif-

ference as you understand from the taste?

A. Yes, sir; a very decided difference.

REDIRECT EXAMINATION
BY MR. HIRSCH:

Q. What is that difference, Mr. Walters?

A. Well, I have noticed in some places where it is not properly drawn it often tastes stale. It is not palatable. I notice no difference in the effects because the effects are similar, it has no effect at all. It does not effect me in any place but is purely a matter of the artistic turning of the drink or the drawing of it out of the fountain.

Q. So you say that it is due to the artistic manner of drawing it?

A. Yes, sir.

RECROSS-EXAMINATION
BY MR. MILLER:

Q. You say it is due to the manner in which the man draws it?

A. The taste of it is due to the manner in which it is drawn. I mean, as the dispenser makes the soda water drinks, and I know a great deal about that.

Q. Do you mean as it is drawn in one place it has a taste that is musty and in another it is not musty—that if drawn in one quantity it tastes musty and drawn in another quantity it does not taste musty?

A. Well, the drawing of it has a very decided effect. Probably you have not had any experience with soda fountains.

Q. I am frank to say I never did serve as a fountain boy, but I am asking you as to your experience what it is that makes it different in taste by drawing?

A. Drawing Coca-Cola in one particular way it effervesces and makes a very palatable drink, and in another way it becomes very flat and very stale. Just the difference between stale beer and beer that is freshly drawn.

Q. If you draw stale beer and let it run out, either in a large mug or a small mug, still it tastes stale. I have had some experience with that—

Mr. Sizer: I object to that, as to Mr. Miller's experience about beer.

The Court: On the ground that he is not an expert?

Mr. Sizer: Well—

The Court: The objection is sustained.

Mr. Miller: I agree Mr. Sizer is a censor in beer and intoxicating beverages all right.

BY MR. MILLER

Q. What I want to know, Doctor, is — but I beg your pardon, Mr. Walters I believe it is — if you draw a small quantity and it tastes stale and you draw another quantity and draw it out of the same receptacle ——

A. It is not always necessary to be stale to be unpalatable, it does not always taste stale. I imagine it tastes stale where a little Coca-Cola is used and it becomes old and must deteriorate with age; that, however I am just supposing, that is my idea, but it is a fact that Coca-Cola does not taste the same at the different soda fountains.

Q. The question I address to you is just purely this —whether of not the drawing of it has anything to do with the taste of the beverage after it is mixed in with carbonated water.

A. It certainly does, and while I may not be able to demonstrate it to your satisfaction, it does count for the enormous sale of it at one fountain and small sale at another.

Q. The way it is drawn?

A. Yes, sir; it is a palatable drink at one place and not a palatable beverage at another.

(Witness excused.)

J. W. HARDWICK,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. HIRSCH:

Q. Where do you live?

A. Atlanta, Georgia.

Q. What is your occupation?

A. Clothing merchant.

Q. How long have you been clothing merchant Mr. Hardwick?

A. Twenty-three years.

Q. Do you drink Coca-Cola?

A. I do.

Q. About how much on an average daily do you drink and for how long?

A. Ever since they have been making it, about twenty years, and I will average two per day pretty regularly as far as I can state.

Q. As far as you know, has Coca-Cola had any effect on you?

A. None that I can see.

Q. Do you drink coffee and tea?
A. Yes, sir.
Q. Do they have any effect on you?
A. None to speak of.

CROSS-EXAMINATION
BY MR. MILLER:

Q. What is your weight?
A. About a hundred and fifteen.
Q. What is your age, did you say?
A. Forty.
(Witness excused.)

ALFRED C. NEWELL,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Mr. Newell, what is your occupation?
A. Life insurance.
Q. How long have you been in that business?
A. From seven to eight years.
Q. Where do you live?
A. Atlanta.
Q. How long have you lived there?
A. Well, I have resided there for the last six years. Prior to that I lived in Atlanta between '93 and '98; then the rest of the time I resided in New York.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How long have you been drinking it?
A. Well, sir, I have been back to Atlanta—ever since I have been back to Atlanta I presume I have consumed it rather consistently since 1906.
Q. Can you give us about the average number of drinks you take per day of Coca-Cola?
A. Yes, sir; sometimes I drink one a day and sometimes two.
Q. Do you drink as much in the winter as in the summer?
A. I think I do, yes.
Q. What effect, if any, does Coca-Cola have on you?
A. No perceptible effect.
Q. Mr. Newell, do you drink coffee?
A. Yes, sir.
Q. Does that have any effect on you?
A. None that I can notice.

Q. Do you drink tea?
A. Yes, sir.
Q. Does that have any effect on you?
A. None that I can notice. I will amend that by saying in the summer time if I drink a quantity of tea—if I drink two or three glasses of iced tea, it is a little more stimulating than if I take one glass.
Mr. Miller: I do not care to cross-examine him.

CROSS-EXAMINATION WAIVED.

A. Yes, sir.
(Witness excused.)

G. A. HARBOUR,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Mr. Harbour, where do you reside?
A. Atlanta.
Q. What is your business, Mr. Harbour?
A. I am assistant manager of a cigar and soda business and make mechanical illustrations for trade journals.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. For how long have you been taking it?
A. I have—well—
Q. I will ask you first how many you take a day.
A. I drink one to three glasses—I have no regularity about it. I drink from one to three glasses a day.
Q. Well, for how long a period?
A. Well, I have been drinking it since I was about fourteen years old. The last two years I have consumed it more frequently than I did before that time because I have been in the cigar and soda business only the last two years.
Q. Does it have any effect on you, Mr. Harbour?
A. None whatever, from an injurious standpoint, I would say.
Mr. Miller: I object to that answer.
The Court: Yes, that is incompetent. He may state what the effect is.

BY MR. HIRSCH:

Q. Does it have any effect on you?
A. Well, about two years ago when I went into business I weighed about 153 pounds and I weigh about

185 or 186. I say that Coca-Cola has been very beneficial to me.

Mr. Miller: I object to that, as to his conclusions drawn from that.

The Court: Yes, the objection is sustained and the answer excluded.

Mr. Miller: He might have been drinking some other things in the meantime.

The Court: That is, so far as the witness has expressed his opinion about the matter.

BY MR. HIRSCH:

Q. Do you notice Coca-Cola sold at the soda fountains?

A. Yes, sir.

Q. Before this syrup is dispensed, Coca-Cola syrup, I will ask you whether it is strained or not.

A. Yes, sir; it is.

Q. Have you had any experience as to children drinking Coca-Cola?

A. In the two years I have been in business I do not believe I ever noticed a child call for Coca-Cola. I have seen them take it through the offering of their parents, drinking it merely through straws, but other than that I have never noticed a child calling for it.

Mr. Hirsch: You may cross-examine him.

CROSS-EXAMINATION

BY MR. MILLER:

Q. What do you strain it for, Mr. Harbour?

A. Well, we would strain anything—we strain milk.

Q. I know you do, but I am asking you what you strain Coca-Cola for. You don't strain water when you go to drink it out of a spring?

A. Yes, sometimes I do.

Q. Well, what do you strain Coca-Cola for?

A. Naturally in any syrup, especially a syrup that has been put up possibly in barrels or in other receptacles there may be foreign matters that do not go with the syrup; for instance, you take Georgia cane syrup, that comes out of a barrell used before—it would have to be strained to make it absolutely good.

Q. Well, I am not asking you about that, about Georgia cane syrup, but I am asking you about straining this particular Coca-Cola syrup; what do you do that for?

A. I merely mentioned that in that they are both generally packed in the same receptacle and having been used before, there might be parts of the bung or

burlap or substances, splinters, or something that might come inside of the barrel, come off inside of the barrel.

Q. Then these barrels in which Coca-Cola was dispensed in 1909 or were shipped, were second-hand barrels?

A. I do not know that of my own knowledge.

Q. Well, you stated that.

A. I merely stated that from my natural observation of packing anything—most things you use are used over again where it is possible to use them — clothing cases and other things.

Q. Do you state of your own knowledge on that subject now, or do you mean to go on record as saying that the second hand barrels were used in 1909 in shipping Coca-Cola?

A. I have no knowledge along that line.

Q. Well, what is your age.

A. I am twenty-eight.

REDIRECT EXAMINATION
BY MR. HIRSCH:

Q. You strain all of your syrups at soda fountains do you?

A. Well, yes, sir, we do; everything.

(Witness excused.)

E. C. BROWN,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, first being duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Mr. Brown, where do you live?

A. Atlanta, Georgia.

Q. What is your business, Mr. Brown?

A. Drug business; soda and cigars.

Q. How long have you lived in Atlanta, Mr. Brown?

A. About thirty years.

Q. Do you drink Coca-Cola, Mr. Brown?

A. Yes, sir, I do.

Q. How long have you been drinking it?

A. Twenty years, I guess.

Q. Mr. Brown, state whether it has any effect on you?

A. None whatever that is noticeable.

Q. How much Coca-Cola do you drink, Mr. Brown?

A. The amount varies; sometimes one and sometimes two and sometimes none, sometimes three.

Q. At your soda fountain do you strain Coca-Cola

syrup before it is used?

A. Yes, sir.

Q. All syrups are strained at your fountain, then?

A. Yes, sir; all syrups.

Mr. Hirsch: You may cross-examine him.

CROSS-EXAMINATION
BY MR. MILLER:

Q. How many glasses are sold out of a gallon, about eighty-five, of Coca-Cola syrup?

A. I don't know. I never have figured it up.

Q. Well, didn't you tell Doctor Kelber about a year ago that you sold eighty-five out of a gallon?

A. I don't remember.

Q. You don't remember whether you told him that or not?

A. No, sir.

Q. You don't know how many you sell out of a gallon?

A. No sir.

(Witness excused.)

EDGAR DUNLAP,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Where do you live?

A. Atlanta, Georgia.

Q. How long have you been living in Atlanta, Georgia, Mr. Dunlap?

A. About since 1887.

Q. You drink Coca-Cola, Mr. Dunlap?

A. Yes, sir.

Q. How long have you been drinking it?

A. I guess as long as they have been making it; about twenty years, I guess.

Q. About on an average how many do you drink during a day?

A. Two to three glasses a day.

Q. Do you drink the same amount in summer as in winter?

A. It does not make any difference; I do not notice any difference.

Q. Does Coca-Cola have any effect on you, Mr. Dunlap?

A. None that I know of.

Q. Do you drink tea and coffee?

A. Yes, sir.
Q. About how much per day?
A. I seldom ever drink more than one cup of coffee per day and in the summer I drink a great deal of iced tea.
Q. Does it have any effect on you?
A. None that I know of.
Mr. Miller: I do not care to cross examine.

CROSS-EXAMINATION WAIVED.
(Witness excused.)

C. A. REUSCHENBERG,
the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Where do you live?
A. In Atlanta.
Q. What is your business?
A. Insurance.
Q. What is your age?
A. Twenty-three.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How long have you drank it?
A. Off and on I should say for eighteen years.
Q. About how much do you drink?
A. Well, two or three and maybe six glasses a day.
Q. As far as you know, does Coca-Cola have any effect on you?
A. None that I have ever noticed.

CROSS-EXAMINATION
BY MR. MILLER:

Q. Your friends and acquaintances drink it and have drunk it for long, like you do?
A. Yes, sir, they have.
Q. And they have always done this, those that you were ultimately associated with, have they not?
A. Some of them, if they wanted it.
Q. How much do you weigh?
A. A hundred and forty-five pounds net.
Q. I am requested to ask you what you weigh gross.
A. Sir?
Q. I say, what do you weigh gross?
A. A hundred and fifty pounds.
(Witness excused.)

JOHN H. CRAWFORD,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Doctor, where do you reside?
A. Atlanta, Georgia.
Q. How long have you been living in Atlanta?
A. Since 1888.
Q. What is your business?
A. Druggist.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How long have you drank it?
A. Eighteen or twenty years.
Q. How many glasses per day, on an average?
A. Why, I won't drink any sometimes, and then sometimes three or four.
Q. Doctor, as far as you know does Coca-Cola have any effect on you?
A. When at night I work, it helps me from getting sleepy and tired.
Q. That is, when you take it at night when you are working?
A. Yes, sir.
Q. At your soda fountain do you strain the Coca-Cola syrup as well as the other syrups?
A. Yes, sir.
Q. Do you drink tea and coffee?
A. Yes, sir.
Q. Does it have any effect on you, either tea or coffee, so far as you know?
A. It keeps me from getting sleepy.

CROSS-EXAMINATION
BY MR. MILLER:

Q. Does Coca-Cola have any different effect on you in the day time than it does at night,—doesn't it stimulate both times when you take it?
A. No; if I am tired Coca-Cola seems to rest me.
Q. Well, my question was whether it had any different effect on you at night than it had in the day time.
A. I can't say because I don't go to sleep during the day, and I want to stay awake at night.
Q. Don't you know as a physician that Coca-Cola would stimulate you at night it will stimulate you during

the day time?

A. Yes, sir.

Mr. Miller: Is this witness being put on on the same point—I submit if he is he has exhausted the ten witnesses.

Mr. Hirsch. This witness is on the same point.

The Court: How many more have you?

Mr. Hirsch: We have about five or six more.

The Court: Well, we will take then one more witness from Atlanta.

(Witness excused.)

L. J. RICH,

the next witness called in behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION
BY MR. HIRSCH:

Q. Mr. Rich, where do you live?

A. Atlanta.

Q. How old are you?

A. Twenty-six years.

Q. What is your weight?

A. A hundred and seventy-two.

Q. How long have you been drinking Coca-Cola?

A. Six or seven years.

Q. Mr. Rich, were you examined by Drs. Boland and Paulin and Roberts?

A. Yes, sir; I was.

Q. Mr. Rich, how much Coca-Cola do you drink a day?

A. Why, when I am in Atlanta, from two to four glasses.

Q. Does it have any effect on you?

A. No, sir.

Q. Do you drink coffee?

A. One cup of it a day.

Q. Do you drink tea?

A. In the summer time I drink iced tea.

Q. Mr. Rich, in these examinations made by these Doctors, did you make truthful answers to the statements asked you?

A. Yes, sir; I did.

Q. I mean, to the questions that were asked you?

A. I did, absolutely.

CROSS-EXAMINATION
BY MR. MILLER:

Q. How many cups of tea and coffee did you say?

A. I drink one cup of coffee a day in the winter and

one glass of iced tea a day in the summer.

Q. And four to six glasses of Coca-Cola?

A. Two to four.

Q. Do you drink anything else?

A. No sir.

Q. Well, you don't find time to drink any water?

A. No, sir; not very much.

(Witness excused.)

Mr. Sizer: How many did your Honor say we might have of these Chattanooga subjects?

The Court: Take a half a dozen of those that were examined by the physicians.

Mr. Sizer: There is one witness who was not examined by the physicians but who is peculiarly a horrible example and I want to put him on the stand.

The Court: You may examine him.

R. M. WATKINS,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. SIZER:

Q. Will you please state what your experience with the use of Coca-Cola has been?

A. I have been drinking Coca-Cola for about twelve years, and I have taken as high as twenty-four glasses in one day of fifteen hours, and I go sometimes without taking any. I average now, I suppose, about three glasses a day.

Q. What was the condition of your health before you commenced taking Coca-Cola?

A. When I first commenced taking it I used to drink coffee, and I had a spell of acute indigestion and the doctor told me I would have to quit drinking coffee. I asked him if I could continue drinking Coca-Cola and he told me I could ——

Mr. Miller: If this is being tried as a medicinal preparation we have gone into a different line of investigation. I submit it is not competent to relate here the communications between this witness and the physician.

The Court: The exception is sustained and the statements made by the physician are excluded.

BY MR. SIZER:

Q. Without stating what your physician told you, please state whether or not after your sickness you discon-

tinued the use of tea and coffee, or of coffee.

A. Yes, I did.

Q. And what did you then use?

A. I continued the use of Coca-Cola.

Q. Did you while drinking Coca-Cola experience the same symptoms or ill effects that you had while drinking coffee?

A. No, sir; none whatever.

Mr. Miller: We did not bring the coffee matter into this case; they brought it in, we tried to keep it out of the case from the beginning.

The Court: I have admitted it and he was merely asking him whether he had indigestion after he began drinking Coca-Cola after he quit coffee.

BY MR. SIZER:

Q. Did you have indigestion after you commenced drinking Coca-Cola?

A. No, sir; I have not. I drink it regularly.

Q. Is your health—or, what is your condition of health now?

A. I think it is better now than it ever has been.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Mr. Watkins, you chew gum, don't you?

A. Yes, sir; sometimes.

Q. That is done to aid digestion?

A. No, sir; I do not take it for that purpose.

Q. Well, it is supposed to aid or relieve indigestion.

A. The fact of the business is I never chew gum immediately after meals; I chew it before. I chew it more to have something to do than to get the results.

Q. Well, you chew it in the office?

A. Yes, sir, sometimes.

Q. What is your weight?

A. I weigh a hundred and thirty-three.

Q. And what was your father's weight?

A. My father's weight was, at the time of his death, two hundred and twenty, something over two hundred. I have never weighed over a hundred and forty pounds, and I have weighed for several years about a hundred and thirty-three.

Q. I did want to ask you one more question, Mr. Watkins, if you please: Were you a stockholder in the Coca-Cola Company or the bottling company?

A. At one time.

Q. And you sold your stock to a very intimate friend

of yours?

A. Yes, sir, I sold it to a very intimate friend of mine.

Q. You sold it to a very intimate friend of yours?

The Court: That is immaterial.

The Witness: Not as intimate as you are with me, Mr. Miller.

Mr. Miller: I certainly take pleasure in stating that I am your friend.

BY MR. MILLER:

Q. He was a very intimate friend?

A. He was a friend and acquaintance.

Q. He still owns the stock?

A. I suppose so; I do not know.

The Court: I exclude that, as to whether his friend owns the stock.

REDIRECT EXAMINATION,
BY MR. SIZER:

Q. Are you in any way connected with the Coca-Cola business now?

A. No, sir, I am not and have not been for two years.

(Witness excused.)

WILL F. WORLEY,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You live in Chattanooga, do you?

A. Yes, sir.

Q. What is your business?

A. I am in the laundry business now.

Q. What is your age?

A. Forty.

Q. Do you drink Coca-Cola?

A. Yes, sir.

Q. How long have you drunk it?

A. For the last fifteen years.

Q. How much do you drink a day?

A. I drink from one to three glasses or four glasses.

Q. Have you frequently drunk more than that in a day?

A. Yes, sir; previous to that I was in the drug and soda fountain business.

Q. How much Coca-Cola did you drink then?

A. Well, I don't know, I just liked it better than any other drink. I drank it occasionally at fountains when I was thirsty.

Q. Could you approximate how much you drink a day, or did at that time?

A. Five or six glasses, I guess.

Q. And for how long did you drink it at that rate?

A. Well, three or four years.

Q. Did you ever experience any ill effects from drinking Coca-Cola?

A. I never did that I can tell.

Q. Did it ever have any effect on you?

A. None whatever; just liked it better than other drinks.

Q. Were you one of the hundred subjects examined by Doctor Holtzclaw and Doctor Brown and Doctor Wert last summer?

A. Yes, sir.

Q. Were the answers you gave to the questions asked you by them truthful?

A. Yes, sir; they were.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Who procured you to go up and be examined, Mr. Worley?

A. How is that?

Q. I say, who asked you to go up and be examined?

A. Mr. Chapin asked me to go up.

(Witness excused.)

LOUIS L. HARRISON,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You live here in Chattanooga, do you?

A. Yes, sir.

Q. What is your business?

A. I am a soda dispenser.

Q. At what place?

A. At George K. Brown & Co.

Q. Where is that located?

A. Seventh and Market.

Q. Is that what is known as the Palace?

A. Yes, sir.

Q. How long have you been connected with that establishment?

A. About four and a half years.

Q. Do you dispense Coca-Cola there?

A. Yes, sir.

Q. In addition to Coca-Cola, do you dispense other fountain beverages?

A. A good many, yes.

Q. Have you noticed whether children — the habit of children with respect to drinking Coca-Cola?

A. I know of no child that drinks Coca-Cola regularly.

Q. What do they drink?

A. They generally get milk chocolate or ice cream or something, that they can get the most of.

Q. Have you observed people that frequent your soda fountain down there with respect to the number of glasses that they will take in the course of a day?

A. We have customers that come in about — they generally come of a morning, some few of them come back again in the evening just now, and in the summer time they drink perhaps a little more.

Q. That would be how many glasses a day?

A. About one or two glasses during the cold weather.

Q. And during the summer they increase it how much?

A. Three.

Q. You drink Coca-Cola yourself?

A. Yes, sir.

Q. To what extent?

A. I drink it, when I drink it I drink from one to four glasses a day.

Q. You drink it, from one to four a day?

A. Yes, sir.

Q. What effect does it have on you?

A. It does not seem to have any, I just drink it to quench my thirst.

Q. Do you ever have a "double-header" called for?

A. We have a drink that we mix with Coca-Cola syrup and pepsin, one of our mixtures, we mix it about half and half, it is also called "Half-and-half" and "Double-header."

Q. Does that contain the same amount of Coca-Cola as the ordinary drink of Coca-Cola straight?

A. No, sir; a good deal less.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Now, if a man comes in and calls for a Coca-Cola or for a "Dope" or for a "Coke," you understand, of course, he gets Coca-Cola?

A. Yes, sir.

Q. And you serve it that way?

A. Yes, sir.

Q. What do you mean by saying some of them drink it regularly?

A. Well, people going to work, a good many of them pass down Seventh street at different times of the morning, sometimes they do not come in and sometimes they do. What I call a regular customer is one who comes in three or four times a week.

Q. You have no children that come in that you would call regular customers?

A. No, sir; none at all.

(Witness excused.)

J. W. EVANS,

the next witness called on behalf of the Claimant and Intervenor, The Coca-Cola Company, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Mr. Evans, are you one of the hundred subjects who were examined by Doctors Wert, Brown and Holtzclaw last summer?

A. Yes, sir.

Q. What is your age?

A. Twenty-five.

Q. What is your business?

A. I am receiving teller at the First National Bank.

Q. Do you drink Coca-Cola?

A. I do.

Q. How much do you drink a day?

A. Why, one sometimes; not more than three or four.

Q. You drink the same amount every day?

A. No, sir.

Q. Does it have any effects on you as far as you know?

A. No, sir.

Q. For what purpose do you drink it?

A. Nothing but to quench my thirst.

Q. How long have you drank it?

A. Steadily for five years.

Q. Is your health good?

A. Yes, sir.

Q. Have you recently taken out any life insurance, been examined for any?

Mr. Miller: I object to that.

The Court: Do you want to lay grounds as a basis for calling the physician who examined him?

Mr. Sizer: I do not know whether he has taken or made application for any.

BY MR. SIZER:

Q. Have you been examined for life insurance recently?

A. A year ago.

Q. Did you get a policy?

A. Yes, sir; I did.

The Court: You can prove the name of the physician, then if you want to prove by the physician that he examined him, you can do so.

BY MR. SIZER:

Q. Who was the physician that examined you?

A. One physician, Dr. G. Manning Ellis ——

The Court: I think the examination of the physician would be immaterial.

Mr. Sizer: We did not intend to call him — I submit, may it please your Honor, in view of what Doctor Johnston testified as to the kind of examination applicants for life insurance are subjected to, I think we can prove he has made an application and been examined and allowed a policy.

The Court: I do not think it is competent. He was not asked about Coca-Cola at all on that examination.

BY MR. SIZER:

Q. Were the answers that you made to the three physicians who asked you the questions last summer, — were they truthful?

A. Yes, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Who procured you to go up to be examined by these three men last summer?

A. Mr. Thomas.

Q. B. F. Thomas?

A. Yes, sir.

Q. He is a patron of your bank?

A. Yes, sir.

The Court: What did the witness say?

The Stenographer: The answer was: "Yes, sir."

(Witness excused.)

EMIL WASSMAN,

the next witness called on behalf of the Claimant and Intervenor, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Do you live in Chattanooga?

A. Yes, sir.
Q. What business are you engaged in now?
A. Tax assessor of Hamilton County.
Q. How long have you been tax assessor?
A. About six years.
Q. How long have you lived in Hamilton County?
A. Since 1870.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How much?
A. On the average three or four glasses a day; sometimes as high as five.
Q. How long have you been drinking it?
A. Before they began to bottle it; I do not know how long that has been.
Q. You mean before they began to bottle it you commenced to drink it?
A. Yes, sir.
Q. Do you remember about how long before?
A. No, sir.
Q. It has been a number of years, has it?
A. Yes, sir.
Q. What effect does it have on you, Mr. Wassman?
A. None at all.
Q. Have you ever formed any craving for it?
A. No, sir; nothing particularly.
Q. Have you any desire to increase the amount you take daily?
A. No, sir. I have not.
Q. Do you drink the same amount every day?
A. No, sir. Some days I go without drinking it at all.
Q. Do you drink more in the summer than you do in the winter?
Mr. Miller: I object to that — no, I don't object.
The Witness: What was the question?

BY MR. SIZER:

Q. I say, do you drink more in the summer than you do in the winter?
A. Yes, of course, in hot weather I drink more.
(Witness excused.)
Mr. Miller: I think, if your Honor please, the list of ten witnesses has been more than exhausted, and for that reason I move to exclude this. I do not object to cross-examining Mr. Wassman; if there is going to be a limit of ten witnesses put on any point, I think that his would have to be excluded.
The Court: I did not intend to lay down any iron-clad

rule about that.

Mr. Sizer: This is only three; I think your Honor said we might have six from Chattanooga.

Mr. Miller: Mr. Sizer must have been taking too much of the Coca-Cola.

The Court: I said six of that one hundred list. I did not understand this witness was in the hundred list.

Mr. Sizer: Were you one of the hundred subjects examined by the doctors?

Witness Wassman: No, sir.

Mr. Sizer: Then we will not count him in among the six, then.

The Court: I do not want to draw any hard and fast rule. I think you are getting through very rapidly with them. I do not think it is very material, but they are going through very rapidly.

Mr. Miller: All right.

CROSS EXAMINATION.

BY MR. MILLER:

Q. Mr. Wassman, you can approximate the time when you began to drink Coca-Cola, can you?

A. Only in the way I mentioned.

Q. Do you think it has been as much as fifteen years?

A. I cannot tell the number of years. I began drinking it before they began to bottle it.

Q. That is the only means you have of ascertaining whether it has been one year or fifteen years?

A. Well, I began to drink it in Atlanta when I worked there. I worked in Atlanta ten or twelve years ago, I believe, or a little longer.

Q. That was the beginning of your drinking of it?

A. Yes, sir.

Q. Now, as a matter of fact it is served to children that are as young as four or five years of age, to your certain knowledge?

A. What is the question?

Q. I say, as a matter of fact it is served to children as young as four or five years of age, is it not?

A. Yes, sir.

RE-DIRECT EXAMINATION.

BY MR. SIZER:

Q. Do you know, Mr. Wassman, whether children of that age habitually take it, or frequently take Coca-Cola?

A. Well, I have a child between four and five years of age that I let him drink it, I have never seen any bad effects on him, and for that reason I let him drink it.

Q. What is the condition of his health?

A. Well, I should think he is a very healthy child. He was never sick in his life except with the whooping-cough.

Q. Is Doctor Reisman your family physician?

A. Yes, sir.

Q. You say you let this boy drink Coca-Cola?

A. Yes, sir.

Q. Do you know of any other child in the city who drinks it?

A. That is the only one.

(Witness excused).

Mr. Candler: I will now read the following depositions:

D. A. ROSENTHAL,

the next witness, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION.

BY MR. McALLISTER:

Q. Where do you live?

A. Knoxville.

Q. What business are you in?

A. The drug business.

Q. Wholesale or retail?

A. Retail.

Q. How long have you been in that business?

A. About thirty years—do you mean as proprietor or clerk, or all?

Q. In the retail drug business?

A. Thirty-eight years.

Q. Twenty-eight years, you say?

A. No, thirty-eight years.

Q. State whether or not you operate a soda fountain at your place of business in connection with your drug business?

A. I do.

Q. Name some of the principal drinks that you sell at your soda fountain, doctor.

A. I sell all the soda water drinks—ice cream sodas, coca-cola, lemonade, limeade, and all the regular drinks.

Q. Are you familiar with a drink known as coca-cola?

A. Yes, sir.

Q. How long have you been familiar with it?

A. About twenty years.

Q. Where and by whom is it made, doctor?

A. Well, I suppose it is made by the Coca-Cola Company, of Atlanta, Georgia.

Q. Where do you get it?

A. I get it through the jobber in Knoxville.

Q. How long have you been handling coca-cola at your

fountain, doctor?

A. I have been handling it ever since I have been in business.

Q. How, as a drink, is it ordinarily served at the fountain?

A. Sir?

Q. I say, how is the drink ordinarily served at the fountain, of coca-cola?

A. Well, from one to one and a half ounces of coca-cola put in seven ounces or a glass of carbonated water, containing from about five and a half to six ounces of carbonated water to one or one and a half ounces of the other.

Q. Doctor, has there been within your knowledge any other drink, beverage or food product known as coca-cola placed on the market except that made by the Coca-Cola Company, of Atlanta, Georgia?

A. Not that I know of.

Q. To what extent has coca-cola been advertised during your acquaintance with it?

A. Very extensively.

Q. What is your observation, doctor, as to the average number of drinks of Coca-Cola per day that the average man drinks of coca cola who drinks it at all?

A. Well, I couldn't say because I don't pay any attention to the soda fountain, that is, I don't pay any attention to the customers who come in there.

Q. Well, could you state, doctor, to what extent children are in the habit of drinking coca-cola?

A. Very rarely.

Q. How long has coca-cola been on the market so far as you are informed?

A. Well, I believe about twenty-one years.

Q. How long sir, did you say, twenty years?

A. About twenty-one years, I think.

Q. About twenty-one years?

A. That is my recollection as to when it was first brought to Knoxville.

Q. What has been your observation as to whether or not the drinking of coca-cola creates in a person drinking it a craving or desire for increased quantities of coca-cola or increased number of glasses?

A. Well, I don't believe it has had that effect.

Q. You have never observed that it has had that effect?

A. No, sir.

Q. And do you drink it yourself, doctor?

A. Very rarely.

Q. Do you ever drink it?

A. Yes sir, I drink perhaps once or twice a month a glass; I don't drink anything at all and that is the reason I never think of that.

Q. Now, has there been any case within your knowledge of anybody being injuriously affected by the use of coca-cola, doctor?

A. No sir.

CROSS EXAMINATION.

BY MR. MILLER:

Q. You are a practitioner of medicine?

A. No sir.

Q. Are you acquainted with Dr. Gooding who has just left the stand as a witness for the claimant in this case?

A. Yes sir.

Q. Is he a practitioner of medicine?

A. I do not believe so; I understood some years ago that he was registered as a practicing physician, but I do not believe he practices.

Q. Now, you say that at your fountain you serve or are supposed to serve from one to one and a half ounces of the coca-cola syrup in seven ounce glass, the remainder of the contents being carbonated water?

A. Yes, sir.

Q. Is there any graduate on this glass that you use in serving it?

A. No, sir, but there is on the pump.

Q. On what?

A. On the pump from which the coca-cola is drawn.

Q. What is the graduate on the pump?

A. Well, to draw so much and no more.

Q. And how much, doctor?

A. About an ounce or an ounce and a half.

Q. It is regulated so as to get an ounce and a half into a glass?

A. Yes sir.

Q. Is it sometimes served one ounce in a glass for the reason that the boy in pulling up the pump don't pull the pump all the way and won't draw a full ounce and a half?

A. If they touch it twice, that is, if they give two pressures on the pump that would result.

Q. Bound to get over?

A. Get a double quantity, yes sir, he would.

Q. When a customer comes in and calls for a double header, what do you understand by that?

A. Well, I never heard of it.

Q. You don't serve at the fountain yourself?

A. No sir.

Q. But if he would call for a double header you would

understand that was a double quantity.

A. Yes sir, I suppose so, but he would not get it.

Q. What did you say, doctor?

A. I say he would not get it.

Q. And why not?

A. He is supposed to pay a nickle for the glass, and he would not pay ten cents for a double header.

Q. But if he got one ounce he would not get a nickle's worth because he would be entitled to an once and a half?

A. No sir, he is entitled to an ounce and a half or an ounce, and he would get a nickle's worth with an ounce, from an ounce to an ounce and a half is all he is supposed to get or to be given.

Q. All that is supposed to be given?

A. Yes sir, for a nickle.

Q. Now, why do you say that is all that is supposed to be given? What is the basis of that supposition?

A. It is my regulation of the sale of the coca-cola at that fountain.

Q. And you instruct your boys there that are serving to serve one ounce or from that up to an ounce and a half of coca-cola for five cents?

A. Yes sir.

Q. Now, if a customer were to ask for two glasses or a double portion of the mixture and pay the increased price of course you would give him from two to three ounces of coca-cola?

A. I hardly think so because it is never called for to my knowledge.

Q. You don't serve there yourself, and you don't know how many glasses the average consumer takes in a day for that reason?

A. No sir.

Q. Well, you don't know what does take place at the fountain?

A. I know pretty nearly what is going on, but I don't see all who come in.

Q. Then why is it you cannot give us the daily quantity consumed by the average individual?

A. Because I cannot keep track of every customer that comes in there; my place of business is different from the small stores, at least from one to two thousand people at the counter, and I don't keep track of every person that comes in and how many drinks they take.

Q. And you don't want to say for that reason that it is not sometimes called for stronger by some persons than by other persons?

A. I have never seen it called for that way and I have

never seen the boys give a double tap of the pump.

Q. Did you ever observe a person call for dope when he calls for coca-cola?

A. No sir, I can't say.

Q. Do you mean to say you have never heard coca-cola termed dope?

A. Yes sir, I have.

Q. And where did you hear it called dope?

A. I have heard the boys call it dope, and ask if they drank dope.

Q. Then you do know that it is called for under the name of dope?

A. No sir, I couldn't say it was called for under the name of dope.

Q. Now, where was it that you heard it called for under the name of dope?

A. I didn't say that; I have heard it called dope.

Q. And by whom?

A. By different men and boys who drink it.

Q. And if dope was called for you would understand that coca-cola was expected?

A. Not necessarily.

Q. What would you understand was expected?

A. I would not know what they would want; I would not give them anything under the name of dope.

Q. You would not give anything—

A. (Interrupting) No sir; if I waited on the counter and he asked me for "dope" I would not give him anything; I have heard it called under that name.

Q. You have heard coca-cola referred to as dope?

A. Yes sir.

Q. What do you mean when you say children rarely drink it; what age persons do you refer to?

A. I mean anyone under fifteen years of age.

Q. How about shop girls, are they accustomed to patronizing your fountain and drinking coca-cola?

A. Yes sir, a few of them.

Q. Do you know the contents of coca-cola syrup?

A. No sir.

Q. Do you know whether or not there is any caffeine in it?

A. No sir, I do not except as they state in their advertisement—

Q. Is coca-cola recognized as a drug?

A. It is recognized as a drink.

Q. As a drink?

A. Yes sir.

Q. If an individual presented himself at your fountain

and wished coca-cola, of course you would sell it at five cents a glass?

A. Yes sir.

Q. And if he wished two glasses you would sell him two?

A. Yes sir, I suppose so.

Q. And if he came in and wanted a dozen a day, you would sell them?

A. Without doubt.

Q. How was that?

A. Without doubt.

Q. So that it depends entirely on whether or not he has the price to pay as to how many glasses an individual may consume during a day?

A. I don't know whether or not that has anything to do with it—if he didn't have the price he could not get it, without he ran an account with me.

Q. But if he did have the price he could get as many as he wanted?

A. Yes sir, he could.

Q. So, during the time that you have handled coca-cola you have never heard a double header called for?

A. No sir.

Q. And you have never heard dope called for?

A. No sir, not that I can say—I have no recollection of it.

Q. Where is your place of business in your store?

A. At the corner of Gay and Clinch streets.

Q. I mean, where do you stay when you are in your place of business with respect to the fountain?

A. Principally in the office.

Q. What did you say?

A. Principally in the office, about half way to the back of the store.

Q. Is that behind the prescription partition?

A. Yes it is.

Q. Where your view is obscured?

A. Yes sir.

Q. You cannot see and hear what goes on at the fountain very well?

A. No sir, not very well; I can see the end of the fountain is about all.

Q. You have paid no special attention to the quantity of drinks that are served, that is relatively speaking, as between coca-cola and other drinks that are served at your fountain?

A. No sir, I do not, except judging from the bills that I pay and the amount of sales.

Q. As a matter of fact, coca-cola, or the sale of coca-cola predominates very much as against the other drinks, does it not?

A. Well, if you mean any individual drink it does, but coca-cola taken in reference to the whole business would average about twenty-five per cent of the business, I think.

A. B. TADLOCK,

the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION.

BY MR. HIRSCH:

Q. Doctor, what is your occupation?

A. I have been a physician.

Q. How long have you been a physician?

A. I am retired now.

Q. How long have you been a physician?

A. Oh, since the beginning of the Civil War.

Q. Where have you practiced your profession?

A. Mostly here and Cincinnati.

Q. What institutions are you a graduate of, doctor?

A. Cincinnati College of Medicine and Surgery.

Q. And when did you graduate from that college?

A. It was in 1861 or 1862; I won't say for sure; in 1862 or may be in 1863, I guess.

Q. And you have been practicing since that time?

A. Yes sir.

Q. Now, when did you retire, doctor?

A. From active practice, I might say, I retired about 1891 or 1892.

Q. Doctor, do you use any soft drinks?

A. Yes sir.

Q. If so, what?

A. I use lemonades and the coca-colas and limeades, such as they have at drug stores.

Q. How long have you known of coca-cola doctor?

A. Well, I don't know how long, but ever since it came into use.

Q. About how long has that been, have you any idea?

A. Hard to say, I don't know.

Q. Well, about?

A. I will say fifteen or twenty years, or may be twenty-five.

Q. How long have you been a user of coca-cola?

A. How was that?

Q. How long have you been a user of coca-cola—I mean drinking it—about how long?

A. It has been from fifteen to twenty years; I would not be certain at all about that.

Q. What has been your experience with coca-cola, drinking coca-cola, so far as yourself is concerned, doctor?

A. Well, my experience has been limited principally just to get a cold drink, a nice cooling drink.

Q. Did you ever try the effects of coca-cola?

A. I thought I did.

Q. In what way?

A. By drinking a quantity of it one evening; I believe I drank eight glasses one evening, to see what effect it would have on me.

Q. And what effect did it have on you?

A. I didn't see any more than just a cooling beverage.

Q. Ordinarily, how many glasses of coca-cola do you take a day?

A. Well, sometimes I take two and sometimes I don't take one a week, and sometimes one in a month, but generally if I am where I get it I will say if it is a hot day I will take from one to three.

Q. Well, how about on a cold day?

A. None at all.

Q. Do you experience any craving or desire for coca-cola?

A. No sir, not a bit, sir.

Q. Do you experience any desire to increase the quantity you generally take?

A. Not a bit more than any other drink—you asked me if I noticed a craving—a craving for a cold drink of lemonade or limeade, or anything of that kind.

Q. How old are you, doctor?

A. About seventy-five, lacking a few months.

CROSS EXAMINATION.

BY MR. MILLER:

Mr. Miller: Reserving exception to the competency and relevancy of the foregoing testimony, the Government cross-examines as follows:

Q. What year was it that you drank those eight glasses, doctor?

A. I can't say what year it was; I think it was several years ago, though.

Q. Probably how long ago, how many years?

A. I would guess it at from eight to twelve years ago.

Q. Now, isn't it a fact that you are very feeble, and that you were assisted to the witness stand by one of the counsel who is present?

A. How is that?

Q. Isn't it a fact that your present condition, your physical condition is such that you were assisted to the witness stand, led around by one of the assisting counsel who is present today?

A. No sir, unless you consider my eye condition a physical condition; I am led—my wife is here, she came with me because of my eyesight, not because I am so feeble at all.

Q. Then didn't one of the assistant counsel, who is present lead you from the back part of the court room around to where you are now sitting?

A. Yes sir, he came along on one side of me, and I think my wife on the other side; I had to have somebody to show me in.

Q. And out of consideration for your condition you are not required to take the elevated place for the witness but you were permitted to sit down off the ordinary stand where the witness sits and on the floor are you?

A. I can't see, and I don't know, sir; I am sitting I suppose where they asked me to.

Q. Now, your best recollection is that those eight glasses of coca-cola were taken by you from eight to twelve years ago?

A. Somewhere along there, several years ago, I can't tell exactly.

Q. And that was where?

A. How?

Q. At whose place of business?

A. No one place, several places.

Q. In what city?

A. This city.

Q. You mean in Knoxville, Tennessee?

A. Yes sir.

Q. As a physician, a retired physician, do you say that caffeine is a drug?

A. How was that?

Q. I say, as a physician, a retired physician, do you say that caffeine is a drug? I am asking you now from your medical experience, medical knowledge, with respect to caffeine. You say you are a retired physician, and I ask you whether or not the substance "caffeine" is a drug?

A. I didn't say so.

Q. I know, but you are on oath, and I want you to say either it is or it is not?

A. Caffeine?

Q. Yes.

A. Caffeine is a drug; cocaine is a drug.

Q. What effect does caffeine have on the human system?

A. It is an alterative and a tonic, and considered a sedative drug rather—I do not want to say sedative, I can't think of the word I would like to say there—antiseptic, I had better say.

Q. Now, can you name any medical treatise or authority that says it is an alterative and antiseptic drug?

A. No, I cannot.

Q. You don't remember of having ever read that in any treatise or medical work of any kind?

A. No sir, I do not recollect it, whether I did or didn't; I certainly have read something about it, though.

Q. For what conditions or under what conditions did you prescribe caffeine when you were in the practice of medicine?

A. Rather as a nerve tonic.

Q. What effect did it have on the nerves? What did you expect it to have?

A. What effect on the nerves?

Q. Yes.

A. Tone them up.

Q. How much would it require to tone them up?

A. It has been so long ago I have forgotten the dose of caffeine.

Q. Are you acquainted with the publication known as the United States Pharmacopea?

A. Yes sir.

Q. What is the prescribed dose according to that of caffeine?

A. I don't remember now.

Q. It is a half grain, to refresh your recollection, isn't it?

A. It is a small amount; I was going to say from a half to three quarters of a grain, or a grain, but I don't remember, and I won't say now.

Q. Then from a half to three-quarters of a grain of caffeine would be considered a dose?

A. Yes.

Q. And that was given by you to tone up the nerves when they were in a depleted condition?

A. Yes sir.

Q. And by that you mean to stimulate the nerves?

A. Yes sir.

Q. To increase activity?

A. Yes sir, that is what the therapeutic effects are considered.

Q. How, in a normally healthful person, where the nerves are in good condition, and already acting properly and you would stimulate the nerves by giving one or more

grains of caffeine, that would have the effect of over-stimulating, would it?

A. Well, it might.

Q. Then, if a person were suffering from nervous debility, why caffeine would stimulate them and serve to bring them up towards the normal point, or what they should be, as you understand it?

A. Yes sir.

Q. And that is the purpose for which you would give it?

A. Yes sir.

Q. You would not prescribe it for a normal health person at all?

A. No, I don't know as I would; there would be no use of it.

Q. And the fact is that in a normal healthy person the effect being of overstimulating the nerves, the effect would not be beneficial would it?

A. It would not be beneficial.

Q. Were your nerves at the time you took these eight glasses of coca-cola debilitated?

A. No, sir, not that I know of; I was in my usual health and on the streets.

Q. Then you would not have taken by way of experimenting if you had known it eight grains of caffeine at that time would you with a view of benefitting yourself, doctor?

A. I don't think I would.

Q. Now, you say you are seventy-five years of age?

Q. I will be next March.

Q. And you retired from the practice of medicine about twenty or twenty-one years ago?

A. Virtually so.

Q. And you consumed these eight glasses of coca-cola sometime after retiring from practice?

A. Yes sir, I think it was since then.

Q. What did you say?

A. I think it was since that, pretty sure it was, I don't think it has been over ten or twelve years or eight or ten years, somewhere along there.

Q. If you were prescribing caffeine for a person who was suffering with nervous debility, what would be the average dose per day that you would prescribe?

A. My recollection now that I would be guided by is that I would not prescribe more than a grain at a dose about two or three or four times or twice or three times; I don't think I would prescribe exactly that, I would not go over that.

Q. Now, what do you think you would prescribe, if not prescribe that?

A. You asked me for the quantity of the medicine.

Q. I am asking you about a person who was suffering with run-down or debilitated nerves, and you were prescribing caffeine, and I asked you for its beneficial effect —now, in what doses would you prescribe it, over what period of time and how often per day?

A. According to the patient; I think it would be somewhere between a half grain three times a day and a grain.

Q. And over what period of time, until he showed signs of improvement?

A. Probably a week or ten days—three or four days; if he seemed to get all right, then I would quit it in one day.

Q. What is the effect of caffeine on the brain, doctor?

A. I don't know what the pathological effect would be; it would tend to stimulate the brain.

Q. Sir?

A. Stimulate the brain, and some claim that it keeps one from sleeping, and others claim it causes sleep; coca-cola don't act either way with me, don't make me sleep or keep me awake.

Q. Do you know of any reputable medical authority that teaches or holds that it has a depressant effect, I mean, you say that it produces sleep?

A. I can't recall any, it has been so long since I have read anything on that subject.

Q. You know it is generally accepted by the medical profession, however, that it acts as or does incline one to sleeplessness and wakefulness in that it stimulates the brain?

A. That is my understanding; I used the word "antiseptic" awhile ago; I meant as a disinfectant; I have heard some say it was the best disinfectant we have. I am rather inclined to think that coffee or caffeine is more or less a disinfectant to the stomach and bowels.

Q. You are an advocate then, I take it, of coffee drinking?

A. How was that?

Q. You are an advocate of coffee drinking?

A. Yes, I am.

Q. You think it has a good effect on the human system?

A. Yes sir.

Q. And likewise you would be an advocate of caffeine consumption?

A. As a medicine.

Q. Well, take it in soft drinks, do you mean by that

that it would have a beneficial effect on the human system?

A. If one wanted a cold, good cold drink, I don't think it would have any evil or any good effects any more than any cold drink beverage, unless used to or in an excessive amount; I think one could kill himself drinking water or coffee either.

Q. Now, you say that unless it be used in excessive amounts it would have a non-beneficial effect. If it be true that caffeine stimulates the brain and over-stimulates the nerves, as you say in a normal healthy person, then will you please tell us what beneficial effect it could or would have on a normal healthy person, if he should commence to use caffeine either in coffee or in soft drinks, cold drinks, as you put it?

A. So far it is a food just like iron—so far it would act as a food to increase digestion and assimilation—

Q. (Interrupting) But cocaine has largely the same properties and effects as caffeine, has it not, according to the medical authorities?

A. I don't know what the medical authorities are so well as my own experience—I would rather think that cocaine—I would rather think it has rather a quiet effect—a quieting effect on the system more than coffee or caffeine—I think it has more of a sedative effect on the brain than a stimulating effect.

Q. Isn't it a fact that cocaine makes the user wild and delirious at times?

A. I have never seen any of that effect, sir, only have heard of it.

Q. Well, your understanding it, and from your medical knowledge, that it puts one almost in the condition of having delirium tremens?

A. Do you mean coca-cola or cocaine?

Q. Cocaine.

A. Yes, that is my understanding of the effects of cocaine.

Q. That is the effect of that drug which you say acts as a sedative?

A. Bound to do it as a beverage.

Q. Then, taken as a beverage, cocaine would act as a sedative?

A. Yes sir.

Q. Now, in what form would you take it so as to produce that condition akin to delirium tremens?

A. In what form? I would take it as cocaine.

Q. It would be cocaine no difference whether you took it in a beverage or how you took it, you would get the effect of cocaine just the same?

A. I don't know about that, sir; I can't know about that, sir; there is a difference between the effects of a drug in its chemical and analyzed condition, and in its crude condition; I heard a very eminent physician say once that he could get better effects from Peruvian bark in tea than he could from quinine in many cases, to break up malarial fever, and I believe that is so in some cases.

Q. Now, do you know of any neutralizing substance in the ordinary corbonated water that would serve to reduce the effects of either cocaine or caffeine on the human system or decrease or modify the effects, and if so, what is it?

A. I don't know that I understand your question as to that.

Q. My question is, if you give a substance, if you give caffeine or cocaine straight as a drug without serving it in carbonated water, and then you give it in a glass of carbonated water, what, if any difference is there in the effect of it, assuming that the same quantity is taken?

A. It would be a supposition of mine to answer that question.

Q. You are not prepared to say then that there would be any difference in the effect?

A. Whether given as cocaine powder or as a liquid?

Q. Or given as a liquid with the ordinary carbonated water?

A. I would say it would be more rapid in carbonated water or anything of that sort.

Q. The effect of it would be more marked?

A. Yes sir.

Q. And be absorbed quicker?

A. Yes sir, I would think so, I would think so.

RE-EXAMINATION.

BY MR. HIRSCH:

Q. Doctor, outside of the condition of your eyes, are you for a man of seventy-five years of age in good health?

A. I can say that I am in pretty good health, except for a very serious cough; I have had it for a number of years, and it troubles me a good deal.

Q. What other beverages do you know of, if any, that contain caffeine?

A. Sir?

Q. I say, what other beverages do you know of, if any, that contain caffeine?

A. I don't know only as I understand it that coca-cola has caffeine. Did you say that contain caffeine?

Q. Yes.

A. Now ask the question again, please.

Q. Does coffee contain caffeine?
A. Yes sir.
Q. And what about tea?
A. Thein is the essential property of tea. I don't or can't say for certain whether any caffeine in tea or not, I don't think so, but thein.
Q. How much do you drink a day, doctor?
A. About two or three cups a day, one to three cups.

RE-CROSS-EXAMINATION.
BY MR. MILLER:

Q. Why did you retire from practice, doctor.
A. Because my eyes forced me to.
Q. Your eyes?
A. The loss of vision?
Q. How is your digestion?
A. Bad.

H. B. BRANNER,

the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION.
BY MR. McALLISTER:

Q. What is your business Mr. Branner?
A. I am in the banking business here, sir.
Q. Here in Knoxville?
A. Yes sir.
Q. With what bank?
A. Third National Bank.
Q. What is your connection with that bank?
A. President of it.
Q. Mr. Branner, do you know of—first I will ask you, do you or not ever patronize soda fountains?
A. Yes sir.
Q. What drinks do you chiefly call for at soda fountins?
A. Coca-cola has been my drink; that and occasionally some grape juice.
Q. How is coca-cola ordinarily served to the consumer from the counter, Mr. Branner?
A. It is a syrup put in a glass, and then charged water put in on it, and served like they serve a glass of soda water.
Q. In about what proportion, do you know?
A. I should say from along about one-fifth of it.
Q. Do you know where and by whom the syrup is made, the coca-cola syrup, is made, Mr. Branner?
A. At Atlanta, Georgia, by the Coca-Cola Company.

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Volume IV.

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1915.

No. 562.

THE UNITED STATES, PLAINTIFF IN ERROR,

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT, AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

FILED JULY 16, 1915.

No._____

UNITED STATES CIRCUIT COURT OF APPEALS

FOR THE SIXTH CIRCUIT.

THE UNITED STATES, *Appellant*,

vs.

FORTY BARRELS AND TWENTY KEGS COCA-COLA, *Appellee*.

FROM THE DISTRICT COURT OF THE UNITED STATES,
SOUTHERN DIVISION,
EASTERN DISTRICT OF TENNESSEE.

RECORD
PART FOUR

JAMES B. COX, United States District Attorney, Knoxville, Tenn.,
W. B. MILLER, Special Assistant United States Attorney, Chattanooga, Tenn.,
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J. B. SIZER, Chattanooga, Tenn.
HAROLD HIRSCH, Atlanta, Ga.
For Appellee.

MACGOWAN-COOKE, CHATTANOOGA

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Q. How long have you been acquainted with the drink, Mr. Branner?

A. I guess about seven or eight years since I took the first of it.

Q. Do you know how long the drink has been on the market?

A. No sir.

Q. State whether or not, please, if you know, whether there has ever been any other drink, beverage or food product put on the market under the name of coca-cola except that manufactured by the Coca-Cola Company, Atlanta, Georgia?

A. All I ever heard of.

Q. To what extent has this drink been advertised within your knowledge, Mr. Branner?

A. Well, sir, in all of my travels I have seen it, I believe, at every place I have ever been.

Q. You mean you have seen it advertised?

A. Yes sir.

Q. Have you travelled pretty frequently?

A. Yes, I have travelled considerably.

Q. Mr. Branner, about how many glasses of coca-cola a day, on an average, do you drink?

A. Well, I never drink over about two; some days one, and then on some days, cold days, I don't take any at all; in the summer time I generally take about two glasses a day.

Q. Is it your experience, Mr. Branner, or have you observed from others, that the drink coca-cola creates—I will put the question this way: Is it or not your experience or have you not observed in others that the drinking of coca-cola creates a craving or desire on the part of the person drinking it for increased quantities of coca-cola or increased number of glasses?

A. It has never been so in my case; I don't know how it has been with other people; it has never been with me; it never has had any more effect with me than any other glass of soda or soda water.

Q. Yes, has there ever been a case within your knowledge of anybody being injuriously affected by drinking coca-cola?

A. No sir, not that I know of.

CROSS-EXAMINATION.

BY MR. MILLER:

Q. Who is the jobber, or jobbing firm here in Knoxville through whom this coca-cola syrup is dispensed?

A. Well, I don't know, sir, who the jobber is—well, I

said no—I will say this, that barrels come here—I see them occasionally—when they carry it in at Mr. Gooding's and some others, from Atlanta, that is where they said they bought it.

Q. You don't know who the distributing agent or jobber is at Knoxville?

A. No sir.

Q. Now, it is frequently termed "dope" by people who go to the fountain who call for it at the fountain?

A. Yes, I have heard people say, "Give me a glass of dope."

Q. And the dispenser very readily understands what is meant by that and serves coca-cola, as you understand it, Mr. Branner?

A. Yes sir.

Q. How is it drawn from the fountain, Mr. Branner?

A. It is kept in some receptacles that the other syrups are at Gooding's fountain; it is in the same sort of receptacles that he keeps his syrups for soda water, different syrups of that sort.

Q. And the boy goes there and touches an automatic sort of spring and that pumps a certain quantity of the coca-cola syrup?

A. Yes sir.

Q. Is there any graduate on the glass or otherwise by which you can tell exactly how much is being served?

A. No sir, on none that I have ever drank out of.

Q. And of course in serving it in that way a variable quantity is served as there is no method by which the exact proportion or portion can be drawn each time?

A. No, but my experience has been in there that it is about the same in each glass that I get all the time.

Q. Of course you have paid no very particular attention to that?

A. No sir.

Q. And of course sometimes in touching one of these flat pieces or automatic springs, the boy does not get a sufficient quantity, and if this occurs he can touch it again when he gets ready?

A. Yes sir.

Q. And sometimes he gives it two punches and sometimes more?

A. Well, I never noticed about the number over two; I have seen them as many as two.

Q. Do you patronize Mr. Gooding's fountain?

A. Yes sir.

Q. And there is the place where you have made the observations, what observations you have made?

A. Yes sir.
Q. In a general way?
A. Yes sir.
Q. What is your weight, Mr. Branner?
A. I weigh about two hundred and fifteen pounds.
Q. You have enjoyed very good health for the last few years, have you?
A. Yes sir.
Q. And have frequently been up late at night?
A. I have been up late at night, yes sir.
Q. What is your height, Mr. Branner?
A. I am five feet, ten inches.

D. M. CHAMBLISS,
the next witness called on behalf of the claimant, of lawful age, first duly sworn, deposed:

DIRECT EXAMINATION:
BY MR. McALLISTER:

Q. What business are you in, Mr. Chambliss?
A. Retail drug business.
Q. And where?
A. 301 Gay Street and 310 Clinch Avenue.
Q. In Knoxville?
A. Yes, sir.
Q. How many stores do you run?
A. Two stores.
Q. You run two stores?
A. Yes, sir.
Q. How long have you been in the retail drug business, Mr. Chambliss?
A. About eighteen years.
Q. State whether or not in connection and as incident to your drug business you operate a soda fountain?
A. Yes, we do.
Q. At both places?
A. Yes, sir.
Q. State whether or not you exercise general supervision over these fountains?
A. I do.
Q. Are you not familiar with the general condition of the soda fountain trade and business?
A. I am.
Q. How long have you been so familiar, Mr. Chambliss?
A. Twelve to fifteen years.
Q. What are some of the principal drinks that you dispense at your soda fountain, Mr. Chambliss?
A. Phosphates and Coca-Cola, ice cream sodas and nut

sundaes and things of that kind.

Q. How is the drink called Coca-Cola ordinarily dispensed at the fountain, how is it ordinarily served to the customer or consumer?

A. One ounce of syrup to about six or seven ounces of carbonated water.

Q. Where and by whom is the syrup from which Coca-Cola, The drink called "Coca-Cola" is made, where and by whom is it made?

A. The Coca-Cola Company; we buy ours from Atlanta; I think there are other branches that it is shipped from.

Q. How long have you been familiar with the drink known as Coca-Cola?

A. I should say twelve to fifteen years.

Q. State whether or not, Mr. Chambliss, during that time there has been, within your knowledge, any other drink, beverage or food product on the market known as Coca-Cola except the drink made by the Coca-Cola Company, of Atlanta, Georgia?

A. That is the only one under that name; there are a good many others imitating it under similar names.

Q. The only one by the name of Coca-Cola?

A. Yes, sir, that I know of.

Q. To what extent has the drink, Coca-Cola, been advertised during the period of your acquaintance with it?

A. Very extensively and in various forms in the past ten years I would say.

Q. Have you ever known of any other drink being advertised as Coca-Cola by any other manufacturer than the Coca-Cola Company, of Atlanta, Georgia?

A. I have not.

Q. About how many glasses of Coca-Cola on an average a day will the average man who drinks Coca-Cola at all drink?

A. From one to three, I would say.

Q. Mr. Chambliss, state whether or not the condition of the weather has any effect on your sales of Coca-Cola?

A. It does in a way, of course; of course the soda fountain business is a great deal better on a bright warm day than on a cold or rainy day.

Q. How much will it fluctuate that way between a pleasant warm day and a cold unpleasant day?

A. Twenty to thirty three and a third per cent.

Q. Mr. Chambliss, to what extent do children call for Coca-Cola at soda fountains?

A. A very small per cent; I have very few calls from children for it.

Q. State whether or not, Mr. Chambliss, in your experience in the soda fountain business you have known of persons being injuriously effected from drinking Coca-Cola?

A. I have never known of one.

Q. Please state what your observation is as to whether or not drinking Coca-Cola creates in the person who drinks it a craving or a desire for increased quantities and increased number of drinks?

A. I don't think it does; and personally my experience has been that it does not; I tried it personally—I drank it myself, and I have no desire to increase it.

Q. How long have you been accustomed to drinking it or have you been drinking it?

A. From five to six years.

Q. About how many a day do you drink yourself?

A. Not over two.

Q. Do you or not ever go without drinking it during the day at all?

A. Yes, frequently.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Who is the jobber here in Knoxville that handles and dispenses Coca-Cola and sells it?

A. The Chapman Drug Company and Littlefield-Steere Company both have the account, I think.

Q. Both have which?

A. Both have the account, they both job it.

Q. Do you procure your syrup through them?

A. No, sir, we buy direct from Atlanta.

Q. Are you a pharmacist?

A. Yes, sir.

Q. Are you a practicing physician?

A. No, sir.

Q. And are not licensed as a physician?

A. Not as a physician, no.

Q. Where is your place of business in Knoxville, Mr. Chambliss?

A. 301 Gay Street and 310 Clinch Avenue.

Q. Where is your position in your place of business and where do you customarily stay?

A. 301 Gay Street.

Q. Now, what is your position in the room or store?

A. How was that?

Q. What is your position or location in the room when you are in your place of business, at your accustomed place of business, where is that position?

A. I am all over the store, and a part of the time in the

office which is on a balcony in the rear of the store.

Q. How many serving boys or mixers do you have at the fountain at your Gay Street place of business?

A. Four during the summer season and three in the winter.

Q. How many clerks do you employ aside from those three boys, or rather how many persons are there in your place of business aside from those three or four boys at the fountain?

A. About eighteen in the main store at 301 Gay Street.

Q. And you have general supervision over them all?

A. Yes, sir.

Q. And as a consequence you don't spend a great deal of time at the fountain?

A. I have not in the last year or so.

Q. You are not accustomed to serving at the fountain yourself?

A. No, sir, not in the last year.

Q. Have you ever been accustomed to serving at the fountain?

A. In the beginning, ten or twelve years ago, frequently.

Q. When a customer comes in and calls for "dope" at the fountain he gets Coca-Cola?

A. That is a slang phrase that has been used lately in calling for Coca-Cola, it is true.

Q. And that has come to be a very frequent name for it, has it not?

A. I have heard it frequently.

Q. And your boys at the fountain understand what to serve when a customer comes in and calls for dope?

A. Yes, I presume they do.

Q. What is the pharmaceutical profession generally termed "dope", that is whatever character of drug or concoction?

A. It has been applied to morphine, hyoscine, cocaine and similar injurious things.

Q. You are a registered pharmacist, are you?

A. Yes, sir.

Q. Of course you and other persons who sell Coca-Cola sell it for a profit?

A. Yes.

Q. Now, you say the average man consumes from one to three glasses per day?

A. Yes, sir.

Q. At your store?

A. No, sir.

Q. Now, what would be the largest, some of them don't

buy them, what is probably the highest number so as to get this average from one to three.

A. Why, I don't know of anyone at our place using over four glasses a day.

Q. You don't pay any particular attention, however, to how much they use?

A. Just see them in the store and drinking at the fountain.

Q. And you have seen them in there so regurlarly that you have observed that some of them are in there as many as four times per day?

A. Yes, I think that is correct.

Q. You don't know, of course, how many glasses they take while they are there?

A. I have never seen anyone drink more than one at a time when he came to the fountain.

Q. But you have not specifically observed to ascertain as to that, Mr. Chambliss?

A. I have not investigated it, no.

Q. You say you have not investigated it?

A. No sir.

Q. What method or system is there for graduating or measuring the amount of Coca-Cola that is served at one time to one person?

A. Well, some of the dispensing jars are gauged with a pump that is set with a side screw, that is the counter service, where you can measure it accurately; in the wall system there is no way except judging on the glass when you have a certain amount in the glass.

Q. What do you mean by the "wall system"?

A. The old style fountain with syrup in the back instead of in the counter.

Q. By "in the counter" you mean below where the customer cannot see what is going on?

A. No, the pumps are on a level with the serving counter; what is known as the counter service or pump system.

Q. And that is where the Coca-Cola syrup is, under the counter?

A. It is in a jar under the counter, but the pump is on a level with the counter, and where it is dispensed from is in sight.

Q. Yes.

A. And the old style fountain is where the fountain faced the cutomer, and the pump or push thumb plate that the server touches in order to release the Coca-Cola and let it pass in to the glass is connected with that fountain which faces the customer.

Q. Yes. And there is no accurate method of measuring

but the boy who is dispensing it simply guesses at the amount that he puts in?

A. That is correct; it is gauged by the size of the glass, the glass they use, they use from a seven to an eight ounce glass, and the idea is to put one-eighth in it, if eight ounce, one-eighth Coca-Cola and seven-eighths carbonated water.

Q. And if it is a seven ounce glass?

A. We don't use a seven ounce glass, I don't know how he dispenses it then, but I presume give one ounce of Coca-Cola to six ounces of carbonated water.

Q. There is no graduate on the glass?

A. No, sir, not on the glass that we use.

Q. Now, the majority of the fountains in this city and other cities are what you call or term the old style of fountain?

A. No, sir, the majority are the counter system, the new style and have been for the last two or three years.

Q. Take the one that is right opposite the Imperial Hotel, do you call that an old style or what?

A. That is the new style service.

Q. But they are both employed in this and other cities as far as you have observed?

A. Yes, sir.

Q. Now, if you have what is known as the counter system where it is regulated by the thumb screw, you say?

A. Yes, a set screw.

Q. The boy pushes it one time and that is supposed to emit how much in the glass?

A. One ounce; it can be set for any amount, but we set ours for Coca-Cola for one ounce.

Q. Now, as that wears does it increase or dimish the amount that is emited?

A. Well, there is no wear to it—the pump, that is, the dispensing part, I would not think it would wear either in an old one or a new one.

Q. But you are bound to have some wear on it?

A. Yes, but I don't think it would effect the quantity discharged. On some of the pumps they are controlled by springs, and others have the gravity system; of course the spring would become worn in time, but the gravity system would not wear at all.

Q. Now, the spring system, when it does become weakened, does that increase the quantity of Coca-Cola emitted?

A. Yes, I think it would increase it; we don't use the spring system, and I am not familiar with that.

Q. But the counter system that you spoke of consists of both the gravity and the spring systems?

A. Yes, sir.

Q. Now, when a customer calls for a double header of Coca-Cola, what do you understand is meant by that?

A. I never heard that term used in calling for it.

Q. If he calls for it "extra strong" what would you understand to be meant by that?

A. To give him a little more I would think.

Q. You have heard that used have, you?

A. Yes, sir, occasionally.

Q. That means that he wants more?

A. Yes, I would understand it so.

Q. Now, in order to give you more don't he have to touch that spring more than once?

A. Yes, sir, you do.

Q. And you do that in that kind of a case, don't you?

A. Yes, that is done, that is the only way to get it twice, is to push the lever twice, but they do not push it all the way down usually, they would not get a double dose, only get a portion more, depending upon the strength of the stroke.

Q. But when a customer comes in and calls for it "extra strong" or for an increased supply, why you have got to press this spring more than once in order to get the extra amount?

A. Yes, that is correct.

Q. Now, what is the occasion, as you understand it, for the customer calling for it in that way?

A. Well, nothing but a notion; it certainly does not make the drink any better; he does not get any better effect from it, they just imagine they do.

Q. You think it is purely an imaginary effect that it has on the customer?

A. Yes, I do.

Q. Now, what do you say is the effect of caffeine on the human system?

A. Caffeine is a stimulant.

Q. Do you know whether or not there is any caffeine in Coca-Cola?

A. I do not.

Q. If there is any caffeine in Coca-Cola and you give caffeine as a stimulant, then of course the customers system is stimulated?

A. Yes.

Q. And isn't it stimulated in proportion to the quantity of caffeine that is in it?

A. Yes, sir, I would think so if it had caffeine in it.

Q. To what class of persons are your principal sales made?

A. Business people.

Q. And that consists of whom?

A. Clerks, salesmen, travelling and city salesmen and office people.

Q. And does it consist very largely also of girls in department stores?

A. The percentage of our business among girls for Coca-Cola is very small.

Q. It is sold to them, however?

A. Yes, sir, it is.

Q. Now, in speaking of children, what age persons do you refer to?

A. From twelve to sixteen years.

Q. What do you call persons from five years up to twelve years?

A. Very small children.

Q. Now, of course, at your fountain anybody who comes in with the required price can get a glass of Coca-Cola?

A. Yes, sir, he can.

Q. And if he comes in one or a dozen times a day he can get one or a dozen glasses provided he has the price?

A. He is welcome if he has the price.

Q. What amount of Coca-Cola do you say that you consume on an average during the day?

A. I do not know that I could give the amount per day —I know what our contract is, what we consume in a year—

Q. (Interupting) I am talking about you personally.

A. Oh, I misunderstood you; for the present not the same thing; I have drank from one to two glasses a day.

Q. What amount are you consuming now?

A. I thought I would stop it; I have heard many people say in drinking Coca-Cola you can't stop it and I have stopped it frequently; I thought I would try it.

Q. And you thought you would stop it, or at any rate you shut it off?

A. That I would see if I had any desire for it; I had no injurious effect from it.

Q. That you observed?

A. No, sir.

RE EXAMINATION
BY MR. McALLISTER:

Q. Now, I will ask you whether, as a matter of fact people do come in and call for a double portion of syrup, in their drink of Coca-Cola I mean.

A. I don't believe I have ever heard it called for in double quantity; I have heard it asked for "make it

stronger" but I never heard it called for "double header" or double quantity that I remember.

RE CROSS-EXAMINATION,
BY MR. MILLER:

Q. Have you frequently heard it called for as "dope" and have you also heard them ask to have it made stronger?

A. I have.

MR. CANDLER: I will now read the following depositions:

J. P. REGAN,

the first witness called, of lawful age, duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. McALLISTER:

Q. Where do you live, Mr. Regan?

A. Nashville, Tennessee.

Q. What is your business?

A. Manufacturer of tobacco.

Q. Are you not accustomed occasionally to drink soft drinks?

A. I am.

Q. Now give some of the principal soft drinks that you take?

A. I drink Coca-Cola, milk chocolates, lemon phosphate and so on.

Q. How long have you been drinking Coca-Cola, Mr. Regan?

A. Off and on for seven or eight years.

Q. In what form do you drink it?

A. In the bottled form mostly.

Q. Do you know how the bottled drink is put up?

A. It is put up in bottles of carbonated water.

Q. In about what proportion if you know?

A. I don't know, sir.

Q. Where and by whom, if you know, is the syrup which enters into the drink made?

A. I understand it is made by the Coca-Cola Company of Atlanta, Georgia.

Q. How long have you known the drink, Mr. Regan?

A. I have known it for eight or ten years.

Q. State whether there has ever been within your knowledge any other drink, beverage or food product placed on the market under the name of Coca-Cola other than that made by the Coca-Cola Company, of Atlanta, Georgia?

A. None that I know of.

Q. About how many glasses or bottles of Coca-Cola a day do you drink?

A. Why, I will drink, I can't say, I will drink no specified amount a day, but I will drink one bottle one day and maybe go without it for a day or two and then drink two bottles some days.

Q. What has been your experience as to whether or not drinking Coca-Cola creates a desire for drinking increased quantities or an increased number of glasses or bottles of Coca-Cola?

A. I have not noticed that it has any hold on me in any way. I can quit it any time I want to, I am sure I can.

Q. What has been your observation, if you have observed, as to how many glasses or bottles of Coca-Cola the the average man drinks who drinks it at all, takes?

A. I could not say.

Q. You could not say?

A. I have never observed any one and never heard any one state they drink a specified amount.

Q. To what extent has Coca-Cola been advertised within your knowledge since you have known it?

A. I have noticed that it is advertised extensively, both locally in Nashville and in publications, magazines etc.

Q. State whether or not you know of any other drink than that manufactured by the Coca-Cola Company, of Atlanta, Georgia, being advertised to the public as Coca-Cola?

A. I do not.

Q. State whether or not, Mr. Regan, there has ever been a case within your knowledge of anybody being injuriously effected by drinking Coca-Cola?

A. I know of none.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. How old are you?

A. Thirty-three in November.

Q. You have made no special observation on the use or effects of Coca-Cola of course?

A. How was that?

Q. I say you have made no special observations as to the use and effects of Coca-Cola?

A. I have come in contact with people who have used Coca-Cola, but I have never observed any injurious effects from it.

Q. How do you know they use it?

A. I have seen them drink it.

Q. How often?

A. Well, it is according to the individual that I would

be speaking of. In a general way I have been with friends who drank a bottle or a glass or two of Coca-Cola, I believe in the evening. On other occasions I have been out and didn't drink any.

Q. You have come in contact with people who used it about like you do?

A. Yes, sir, in the same form.

Q. And to about the same extent?

A. Well I expect they do; I don't know what they do through the day.

Q. What has been your business for about the last seven or eight years?

A. Tobacco.

Q. Are you accustomed to patronizing soda fountains?

A. I patronize them to a certain extent, yes sir.

Q. What is generally served when "dope" is called for at the fountains?

A. Coca-Cola, that is a slang expression.

Q. How is Coca-Cola dispensed at the fountains when "dope" is called for, by means of a spring worked with the thumb of the server or dispenser?

A. I didn't catch your idea, Mr. Miller.

Q. How does the man serve it at the fountain when a customer goes in and calls for "dope", how does he serve it?

A. Different fountains have different ways of putting the syrup in the glass; some use the thumb press and some use the lever they pull down that throws the syrup into the glass.

Q. They have no means of measuring the amount that is put in the glass?

A. I have never noticed or paid any special attention that they had any gauge as to the amount they put in.

Q. There is no gauge on the glass?

A. I have not noticed any.

Q. Then it depends on the man that is serving it or operating the screw or faucet as to how much he puts in?

A. That is the case to the best of my knowledge.

RE-EXAMINATION,
BY MR. McALLISTER:

Q. You stated, Mr. Regan that where people called for "dope" to be served it was understood to be Coca-Cola they wanted. State whether or not you have ever seen Coca-Cola advertised as "dope"?

A. I have not.

Q. Now, I believe that you stated that "dope" was merely a slang expression for Coca-Cola?

A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. You don't know how that is, you don't know what is in Coca-Cola?

A. I do not, but from the questions you have asked me that if I went up to the fountain and asked for "dope" that is usually meant as a slang expression that I want Coca-Cola.

Q. You don't mean to swear whether it means simply a slang expression, or whether it really is dope?

A. Well, I can only speak from individual experience or from people I have associated with. I know that is the intention that they intend to convey to the server when they call for "dope"; it is a slang expression for Coca-Cola.

Q. And when "dope" is called for Coca-Cola is given?

A. Yes, sir, that is what the customer wants.

Q. Is it generally called for under that name by the young man that drinks it?

A. To a certain extent it is, yes, sir; possibly an easier way to say Coca-Cola, it has been used to a certain extent.

Q. And do they sometimes call for it as "coke"?

A. They do for the same purpose, with the same idea.

Q. Have you no connection with the local bottling works?

A. I have not sir.

Q. And "coke" is sort of an abbreviated name for cocaine, is it not.

A. I couldn't say that it was; I have heard it used "coke" as pertaining to the drink of coca cola, but I don't know any cocaine users or takers of cocaine and never heard it called for under that name.

E. J. SCHOTT,
the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. McALLISTER:

Q. You have been sworn, I believe, doctor?

A. Yes, sir.

Q. Where do you live, doctor?

A. 602 Fatherland.

Q. In what city, I mean?

A. Nashville.

Q. What business are you in?

A. The drug business.

Q. Wholesale or retail?

A. Retail.
Q. Do you operate more than one store?
A. Two.
Q. How long have you been in the drug business, doctor?
A. Since 1894.
Q. State whether or not you operate a soda fountain incident to your drug business?
A. Yes, sir; in each store.
Q. At both of your places?
A. Yes, sir.
Q. Now please name some of the principal drinks you serve at your soda fountain, doctor?
A. Well, I serve all of the soft drinks, such as the phosphates and lemonade, coca cola, pepsol and digestol.
Q. I just wanted you to name some of them.
A. Yes, sir, that is some of them.
Q. I will get you to state how the drink known as coca cola is ordinarily served at your fountain?
A. How was that?
Q. I say, how is coca cola served at your fountains to consumers generally?
A. It is served in eight-ounce glass, one ounce of coca cola syrup and seven ounces of carbonated water.
Q. And where and by whom is the syrup that enters into the drink, coca cola, made?
A. By the Coca-Cola Manufacturing Company, in Atlanta, Georgia, I think.
Q. How long has coca cola been on the market, doctor, so far as you know?
A. Well, to my certain knowledge, I believe I have known of it for fifteen years.
Q. State whether or not there has ever been within your knowledge any drink, beverage or food product placed on the market under the name of "Coca Cola" other than that manufactured by the Coca-Cola Company, of Atlanta, Georgia?
A. Well, there have been imitations of coca cola; I have never used anything but the coca cola that I bought from Atlanta, Georgia.
Q. What I mean or what I am trying to get at is this: has any other drink been placed on the market as and under the name of coca cola?
A. Oh no.
Q. Other than that manufactured by the Coca Cola Company, of Atlanta, Georgia?
A. No sir.
Q. To what extent has the drink known as coca cola

been advertised during that time, doctor?

A. You mean in the ways of advertising?

Q. To what extent, is what I mean?

A. Extensively; it is known all over the United States from what I can learn in my travels. I have bought it in most every city I have traveled in.

Q. Has it been advertised very extensively?

A. Yes, very extensively; I don't know of any other drink that has been advertised more extensively.

Q. To what extent, doctor, do children call for coca cola or are they accustomed to call for coca cola?

A. Why, a very small percentage, very seldom. In fact, I don't suppose that in my experience I couldn't hardly remember when I had sold a child a glass of coca cola; they don't like the taste of it.

Q. State whether coca cola is more popular or less popular with children than ice cream and ice drinks?

A. Well, sir, there could not be any comparison at all, I don't suppose. As I stated above, I don't know hardly when a child has called for it, in fact I don't remember a single child coming in for the purpose of calling for a glass of coca cola; it is generally suggested by the parent or something of that kind.

Q. Doctor, what has been your observation as to the number of drinks of coca cola that a man who drinks coca cola at all, drinks?

A. The average per day you mean?

Q. Yes.

A. Anywhere from two to three, something like that.

Q. Two or three?

A. Yes, sir.

Q. Doctor, what has been your observation as to whether or not the drink coca cola creates in the person who drinks it a craving or desire for increased quantities of coca cola, or for an increased number of drinks a day?

A. Now, do you mean, does a man come in and call for his coca cola, do you mean how often he drinks it?

Q. No, what I am trying to get at is this: whether or not the drinking of it creates a craving for larger quantities of it?

A. No, that has not been my experience.

Q. Do you drink coca cola yourself?

A. Why, occasionally, yes. I suppose I drink possibly three or four glasses a month, something like that; I don't care anything about it.

Q. Three or four glasses a month?

A. Yes, sir, I don't care but very little about it.

Q. Has it or not been your experience in regard to your-

self that the drinking of coca cola creates a craving for more coca cola?

A. No.

Q. State whether or not, doctor, there has ever been a case within your knowledge of a person being injuriously affected by coca cola?

A. Not in my observation, no, sir.

Q. How many gallons of coca cola syrup a year do you handle?

A. I think last year I handled something near a thousand or twelve hundred gallons; this year will handle more than that.

Q. Where are your stores located in Nashville, doctor?

A. Eighth and Broadway and Fourteenth and Woodland.

CROSS EXAMINATION,
BY MR. MILLER:

Q. Are you acquainted with Mr. Kenny, the gentleman who came here with you, to this building with you this morning?

A. Yes, sir, that is I have met him; I have known him by reputation as being the bottler here, but I just met him personally about six months ago.

Q. And by a bottler you mean a man who is the head of the local bottling company that bottles coca cola for sale?

A. Yes, sir.

Q. And was he the one who arranged with you to come here this morning to testify?

A. Yes sir.

Q. Are you a practitioner of medicine?

A. No sir.

Q. Then you are called "doctor" merely because you are a pharmacist?

A. Yes, just as a pharmacist.

Q. Now, in your business house where is your station — where do you stay?

A. I am proprietor.

Q. What I mean is, do you serve at the fountain, or stay behind the prescription case?

A. Well, I work at different parts of the store; of course I have the regular soda water boys, and at the same time I usually try to stay up on the front part of my store to look after and wait on the trade, and generally in front of the fountain at the cigar stand; the fountain is opposite the cigar stand.

Q. How many pharmacists do you employ in your two stores?

A. Three.
Q. Two in one and one at the other?
A. Yes; one of my men is kind of relief man.
Q. And yourself?
A. Yes sir.
Q. And alternates with you?
A. Yes sir.
Q. And you have two at the other place?
A. Yes sir.
Q. Now, about your fountain boys, how many serve at the fountain?
A. I have two boys on different watches, one, for instance comes on at six o'clock in the morning and stays until twelve, and he is off that evening and comes back at night; then the other boy relieves him during his absence; in other words, they are on twelve hour shifts, but there is six hours in between —
Q. Is that so at each store?
A. No sir, at my other store the business is limited and my prescription clerk kind of looks after that business, the business is very small at the soda fountain.
Q. One of your places is near the custom house here?
A. Yes, right across the lot.
Q. Were there two boys serving there about an hour ago?
A. Yes, but one of them will be off at twelve o'clock and the other one, he watches until six o'clock, and then the other one comes back and he is off, they alternate and put in twelve hours shifts.
Q. Then how did it happen that there were two serving there about 10:30 o'clock today at the fountain?
A. I don't suppose you understand the watches. You see they come on at six o'clock in the morning, both of them, there, one to do the making up of the syrups, and the other one stays at the fountain. Of course he might while he was up there and the other one is busy, the other one might jump in and assist him for a few minutes; whenever they are two there one's position is to mix up the syrup and get things in readiness so that when this boy goes off watch and when he is left alone he can stay behind the counter.
Q. How long does it require them to do this mixing, doctor?
A. How was that?
Q. How long does it require this mixer to perform his duties?
A. In the morning from two to three hours; long enough to get the syrups mixed up.
Q. What is to do in mixing the coca cola syrup?

A. Well, he has other duties, for instance, we make our lemon — we buy our lemons and grate the lemon peel off, and then mix them with syrup so as to make the syrup direct from the lemon, and that takes a little time, and the same way with the oranges, and when we come to the chocolate, it is the same way; we have to make our chocolate, to make up our chocolate syrup, but cherry and strawberry I buy the Hengerford-Smith goods, but I dilute those with the syrup that we keep made up.

Q. What do you do in the case of the coca cola syrup?

A. We serve that right from the barrel; that is, we draw it out of the barrel and put it into the eathen jars, in the fountain, into the porcelain jars.

Q. What kind of fountain do you use?

A. The manufacturer you mean ——

Q. I mean what is the arrangement whereby you emit syrup from the fountain into the glass?

A. Why, it is done with a spring pump, no not exactly a spring pump, but is a suction pump.

Q. Is it a pump that works by pressure with the thumb?

A. Yes sir, you press down on the lever and it throws out one ounce of syrup, it is regulated so as to throw that much by turning a little screw, you regulate that to one ounce, and then that is filled up with carbonated water in the glasses, and I presume there are about eight ounces in the glasses, eight-ounce glass.

Q. Does one pressure of the thumb cause an ounce to flow in to the glass?

A. Yes, sir.

Q. Now, in serving this morning about 10:30 it was noticeable that one of the boys punched twice ——

A. (Interrupting.) That is against the rule.

Q. Now if he touched it twice in order to prepare a glass of coca cola, how much would flow if he would give two punches with the thumb?

A. You mean all the way down?

Q. I do not pretend to say, I am just asking you; if he punched it twice with his thumb how much would come out?

A. The pump, it is a suction pump, made on the suction principle, and as he presses it — the pump sets that way and when he presses it, it goes down — there is a little screw on it, and it is set for one ounce, and if you let it come all the way up, the syrup being heavy, the pump won't release, and in some cases I have cautioned him to take his hand and push it up, and in some cases if you let it alone and give it time it will go up in a second or two; but the boys do often get negligent and don't keep the sugar away

from the pump, and the pump don't work well, and I take the pump out and wash it thoroughly and put a little glycerine on it and it works nicely, but they will get in the habit of touching it and a spoonful will run out, but one charge of that syrup is one ounce.

Q. Now, but if they, for some reason, make two punches, as you express it, and punch it twice, what is your explanation of the reason why they punch it twice?

A. Well, that is just disobedience and contrary to my method of doing business; they have got strict orders just to punch that pump once to obtain one ounce of coca cola syrup and seven ounces of water, that is my rule.

Q. But you say that the pump hangs in some way so that a full ounce is not discharged sometimes?

A. Well, that is in a case where the boy does not attend to it like he should, and the sugar possibly gets around the working of the pump and around the piston.

Q. And then what method does he adopt in order to get one ounce out?

A. Well, that pump should be taken out and scalded good and a few drops of glycerine put on it.

Q. But the boy does not take time to do all that while the customer is waiting, what does he do to give the customer his quota of coca cola?

A. I guess in those cases he would punch it the second time and if he finds that he gets too much syrup he puts it back into the container; in other words, my orders are one ounce of the syrup; if the boy puts in any more then he does it absolutely against my will. I try to be there and watch those things, and whenever I catch anything of that kind I remedy it.

Q. But you don't ascertain whether the pump is hung until it actually hangs?

A. No, it may go a week or two and the sugar will not crystalize and hang it, and then it might — it depends a good deal on the weather as to that; I don't know, possibly it is the constituency of the syrup that may have something to do with it.

Q. It is made out of a hard rubber?

A. The pump is, yes sir.

Q. Then there is a sugary substance, I mean there is sugar compound in this syrup and that causes it to clog the pump whereby it actually hangs in the fountain?

A. Yes, sir, in my fountain.

Q. And is that true in the ordinary fountain?

A. Yes, I should think so, with the little cogs, because I had the same trouble when I had a wall fountain. Mine is what is called a "Constellation" it is service in front of

the customer — counter service.

Q. And yours is known as the counter service?

A. Yes sir.

Q. Or counter fountain?

A. Yes sir.

Q. And they have both the counter service and the wall fountain in use in this section of the country?

A. Yes sir.

Q. And they are the two kinds of fountains that are in constant use in this section?

A. Yes sir.

Q. And that same condition would obtain in the other, that is, that the pump or the spring would become coated with sugar and hang and the boy would be required to give it two punches in order to give requisite amount of the coca cola syrup?

A. Yes, sir, that would be, from my observation true.

Q. There is no graduate on the glasses that are used for serving coca cola?

A. Why yes, I had some — the coca cola people got out a glass specifically for that purpose, and labeled on the glass "Coca Cola" and there was a little etched scale on that glass, showing the amount of coca cola requisite to make a drink.

Q. But you don't use that kind?

A. I have been out of them as a rule; I may have some of those on hand.

Q. You generally have some others on hand that have not the graduate on them?

A. Yes, sir, I have some of those because I serve other drinks besides coca cola, and they are rather hard to obtain from the dealer because as a rule these eight ounce glasses come ungraduated.

Q. And as a rule the ungraduated glass is used in dispensing coca cola the same as other drinks?

A. Ungraduated?

Q. Yes.

A. We don't use the graduate glass only for coca cola.

Q. But as a rule the graduated glass is not used for serving coca cola?

A. As a rule that has been my rule until I got out of them and could not obtain them from the jobber; they didn't have any of them.

Q. You are not using them now?

A. No sir.

Q. You are serving in a glass that is not graduated?

A. Yes sir.

Q. And it is left to the discretion of the boy as to how

much syrup he puts in?

A. Well, no sir, it is not left to his discretion; he is given orders to use one ounce, and is properly set for one ounce, and of course in a case where that pump might give him a little trouble it might be necessary to fix the pump, I have noticed in that case once or twice myself where he pumped it a second time, and I gave him instructions — I have pulled it off and got the pump out of there and cleaned it, and I have told him that whenever you catch that pump catching that you pull that tap off and pour it out and clean it off—I have had specific instructions from the coca cola people that to make coca cola properly that one ounce of the syrup with seven ounces of water is all that is necessary.

Q. Now, using the ungraduated glass how is the boy going to tell when he has an ounce of coca cola?

A. Well, from experience.

Q. Then he has to guess at what is an eighth of a glass full?

A. Well, yes; all the pumps are worked pretty much the same and experience will almost tell him just about the distance on the glass that one ounce would be. It is not a poison that would make it necessary to have it so specifically — the reason I bought the coca cola company glasses was from an economic standpoint ——

Q. You sell coca cola to anybody that calls for it, of course?

A. Yes sir.

Q. Whether it be the child or aged person or the nervous person, whomsoever it may be, you sell to the person that calls for it and has the price?

A. Yes sir.

Q. And if a person calls for dope why you understand that means coca cola?

A. Yes, it is a slang word for it.

Q. Do you buy direct from the Coca Cola Company at Atlanta, Georgia?

A. I signed a contract with the Coca Cola people to furnish me through the jobbers, Spurlock, Neal & Company.

Q. Did you ever own any stock in the Coca Cola Company?

A. No sir.

Q. You never have owned any?

A. No sir.

Q. And have never owned any in the local bottling plant?

A. No sir.

Q. Now, you say that coca cola is unpalatable to children, that children don't like it, that is what I understood you to say?

A. Yes, sir, I have had them to taste it, possibly a sup of it and set it aside and I would say don't you like that and they would say no — it tastes ——

Q. (Interrupting.) If it is not palatable, and you have only one ounce served in a drink, how do you explain the fact that you sell from twelve hundred to fifteen hundred gallons a year of the syrup?

A. Simply because the demand for it is so much greater above every article that I sell at the soda fountain, I presume I will sell, in other words, a hundred glasses of coca cola to one of any other drink at the fountain, that is the percentage.

Q. Now, I ask you from your experience as a pharmacist how you explain that fact on the assumption that, as you say, it is unpalatable, why is it that drink predominates to such a great extent over all others, it being an unpalatable drink?

A. Well, I will explain that from the standpoint of a pharmacist that the flavor — it has a specific flavor — I know that from my own experience—I will drink a glass of coca cola — as I stated a while ago, three or four a month, and then I will go for a month and not touch it at all because I do not specially like that flavor; it is a flavor that I have kind of a disgust for.

Q. And you say that it has a flavor that children don't like?

A. No, they don't like the flavor of it.

Q. And you don't like it?

A. No sir.

Q. Then why, I ask you is, it if you don't like it that it predominates to such a great extent as against all other drinks? How can you explain that?

A. Well, I will explain that simply from the judicious advertising, the name "Coca Cola" is just simply burned into the minds of the people; I have had people to walk up to the fountain, possibly four or five walk into my store and step up to the fountain, and one gentleman will say I believe I will take a lemon phosphate and other fellow say give me "coke" and another fellow say I will take the same thing. The name, from what I can observe in my experience, is catchy and the advertisement has been so extensive that two thirds of the people you will find don't know hardly of any other drink to amount to anything; it is simply burned into the minds of the people.

Q. Now, you say they will walk up and call for "coke"

is it advertised as "coke?"

A. No sir; that is just a slang expression or phrase; they call it a "coke," "dope" and "coca cola."

Q. "Coke" is an abbreviation for cocaine, is it not?

A. I don't know what "coke" is. I think that is just kind of a slang phrase, I don't know; the first time I ever had it called for that way I said "What do you want, my friend?" and he said "I want that drink at the fountain that I believe the right name is Coca Cola." And after that I knew that a man wanted coca cola when he called for "coke."

Q. Don't you know that "coke" is an abbreviation for cocaine, and is referred to by people who use cocaine and dispense cocaine, I mean is used by people who use cocaine and dispense cocaine, as an abbreviated name for cocaine?

A. I have often heard that associated with it.

Q. You have also heard the term "dope" used, applying to drugs, such as morphine, and other deleterious drugs, have you not?

A. Yes; yes it is generally applied to a narcotic but knowing the customers, or the ladies or gentlemen that walk into my store — those who have the appearance of ladies and gentlemen, I know when they call for "coke" or "dope" that they do not wish any specific chemical — they apply that to that drunk — I mean that drink.

Q. That they do not desire anything stronger than coca cola?

A. No sir.

Q. Then your explanation of the reason why you sell one hundred drinks of coca cola to one of the other drinks dispensed at your fountain, or fountains, is that although coca cola is not palatable, and you do not like it, and children do like it, that nevertheless you do sell it in that great disproportion because it is advertised?

A. Yes, the advertising that has been so extensive in my opinion as to burn that name right into the minds of the people?

Q. And causes them to take that which is unpalatable to you and to other people?

A. Yes sir, as far as I have observed it.

Q. What is known as the "coca cola habit" or the "coca cola fiend" — you hear that spoken of — what do you mean by that?

A. Well, I presume a gentleman who would come in of a morning and get his coca cola and possibly come back at noon and get his coca cola, and possibly get in the habit of coming into a store and calling for it, why he would become a fiend to that specific drink like a man that would

come in for a cup of hot coffee in the morning and come back for his coffee at noon time, and so on, as you might say about any specific drink that is bought at the fountain; it is kind of a natural thing now for a person to be called a fiend that takes hold of any specific thing and sticks to it or has a tendency to like it.

Q. Well, you know as a matter of fact that such is the case with reference to coca cola because you do hear them call for them "coca-cola fiends?"

A. Yes sir, I have heard them called that.

Q. And you know from your own observation in your stores that the people who do come in and go out perodically and call for it are the same persons?

A. Yes sir, some.

Q. Now, you say in your examination in chief that the average man will take two or three drinks of coca cola per day?

A. Yes, sir.

Q. Of course some of that class don't take any, that is some of the class of people in your store, come into your store as customers, do not take any coca cola at all?

A. No, certainly not.

Q. Now, if the average man takes two or three drinks a day what does the extremist take per day?

A. In my observation I don't think I have a man that drinks over possibly — from my experience — that these railroad clerks down here come in of a morning and at noon and possibly when they got off of an evening, three drinks a day.

Q. Now, if they are the average what would be above the average?

A. I don't know; I have never had anybody to be so fiendish as to drink more than that, that has been my experience.

Q. You would class anybody as a fiend who took more than three drinks of coca cola a day, class them as coca cola fiends?

A. Yes, sir; a man who drank coffee three times a day, I would say he was a coffee fiend.

Q. Now, by reference to railroad clerks, you mean men who work where?

A. In the clerical department.

Q. How many of those are there?

A. I don't know exactly; I presume we have about fifteen or twenty.

Q. Who work near your place of business?

A. Yes, sir, at the N. C. & St. L. Railway offices. We have several school teachers — a good many professors at

the different colleges; and we have some people from here at the post office who come in and call for coca cola.

Q. Now, who are the professors that take three glasses of coca cola per day?

A. Now, that is a rather embarrassing question — do you mean to give the names of the people?

Q. Yes, that is what I mean. Now, why is it embarrassing?

A. I would not like to speak of a man's private business; I have an article for sale that is not against the law, and he buys it, just the same as somebody who comes in and asks for a fountain syringe, and I don't feel like telling the name but nothing wrong about it. If you ask me that direct question I will give you an answer.

Q. I have asked you that question.

A. Well, Prof. Jones over here at the High School is one man, and of course there are several teachers over there, I don't really know their names; I know them by sight.

Q. Male or female?

A. Female.

Q. What are your hours at your store doctor?

A. I am over there more or less all the time from six o'clock to twelve o'clock; I remain over there of a night until twelve o'clock. The next day I work until twelve o'clock and I go off in the afternoon. It depends on how business is and so on; I try to be there as much of my time as I possibly can; I don't have any specific time.

Q. You spend a part of your time in each of your stores?

A. Well, I don't spend very much of my time at the other place only when the man is sick — but, of course, it is necessary for me to take his place then but only in case of providential hindrance.

Q. You know of a product that is known as coca?

A. Do I know the product?

Q. Yes, you know what coca is?

A. You mean the cola nut? Coca?

Q. Yes, coca?

A. Well, you refer to powdered chocolate, we call that powdered coca.

Q. You are acquainted with the United States Pharmacopea?

A. Yes sir.

Q. You have that in your store?

A. Yes sir.

Q. Does that not give the name of a product which is called "coca?"

A. Yes sir.
Q. Do you know what that product is, do you handle it?
A. Yes, I guess I have got some of it.
Q. What does it consist of, what is it?
A. Well, it is powdered, in powdered form.
Q. What is its effect on the human system?
A. Stimulating.
Q. What is there in it?
A. Caffeine.
Q. Isn't it cocaine?
A. I don't know; I don't think it is.
Q. If you don't know what is in it why do you say.
A. Because that is one of the alkaloids that coca contains, and it contains cocaine too. I think in very small percentage, the most of these alkaloids are coca.
Q. Does not coca come from the coca leaf?
A. Yes, sir.
Q. It is made from that?
A. Yes, sir.
Q. Now, isn't the chief constituent of coca leaf cocaine?
A. Yes sir, cocaine, not caffeine, I think I was in error.
Q. Now, do you mean to say that caffeine comes from the coca leaf?
A. No — cocaine comes from the coca leaf.
Q. Then there is not any cocaine — I mean there in not any caffeine in the coca leaf?
A. No, no caffeine, I was wrong about that.
Q. Well now then, you also know a substance that is called cola, don't you.
A. Yes, sir.
Q. And what does that come from?
A. Cola nut.
Q. The cola nut.
A. Yes sir.
Q. Now, doctor, I show you a glass, I will ask you whether or not you recognize that as one of the ordinary glasses that is used at your fountain?
A. Yes sir.
Q. And you term that an eight ounce glass?
A. Yes sir.
Q. And by that you mean it would hold eight ounces of distilled water?
A. Yes sir.
Q. How many ounces of carbonated water will that hold?
A. Well, it will hold the same amount of carbonated water — although it sparkles so you may have a good deal

of it to jump out of the glass — possibly you will lose about two or three drams.

Q. Now, isn't it a fact that carbonated water has gas mixed in it?

A. Yes, that takes up some of the volume of the water.

Q. Is it true that instead of holding eight ounces of carbonated water that it would only hold a fraction over five ounces of carbonated water as it really comes from the fountain?

A. I had not thought about that.

Q. Now, since you have thought about it what do you say on that subject?

A. I don't know just exactly how much—you take 150 pounds of gas and put it in — I know I fill the tank we use in my East Nashville store — we use ten gallons of water and then we turn on a pressure of 150 pounds of gas ——

Q. How much does ten gallons of water weigh?

A. It is measured by vacuum.

Q. What does it weigh?

A. Well, a pint approximately weighs a pound — a dram of water would measure one cubic centimeter under the metric system; of course we generally look upon a pint of water as a pound in the general way of speaking; and that ten gollons of water added, has added 150 pounds of gas.

Q. And that makes the carbonated water you serve at the fountain?

A. Yes, sir.

Q. Now, I show you a graduate with Coca-Cola syrup in it, a syrup which I ask you to examine and state if it is not Coca-Cola syrup. I present it to you now?

A. (Looking at graduate.) I am not familiar enough with the taste, but from appearance of it I would judge that is coca cola, I would not swear it was

Q. Assuming that that was served to a customer within the last hour at your store, which is nearest to the post office when he called for a glass of coca-cola, that that was drawn out by the fountain server as sufficient to make a glass of coca cola, I will ask you whether or not that is in excess of the amount that is served on an average there to the customer?

A. Yes, that is in excess sure.

Q. You didn't know they were serving that much over at your store?

A. No sir.

Q. In one glass of coca cola?

A. No sir.

Mr. McAllister: I understand it is agreed that we re-

served all rights to accept as to competency or relevancy of the testimony until the hearing.

Mr. Miller: Yes.

BY MR. MILLER:

Q. How much is there in that graduate that I have shown you there of the coca cola syrup?

A. Two and a half ounces.

Q. Do you have customers who come in there and call for coca cola extra strong or double header or anything of that kind?

A. If they do they don't get it if I am around; it might be that my clerk would do a thing of that kind but he has absolutely got instructions not to do it.

Q. And why is that so?

A. Because, as I stated before, I buy that stuff upon the idea of making a profit out of it, and the coca cola people insist that one ounce should be given, and whenever their man comes through here taking orders with the jobber to stimulate the sale of it, he always specifies very particularly, or does to me, as to what should be put in ——

Q. (Interrupting.) If the customer would pay double price he could get a double quantity in one glass?

A. He would get two glasses.

Q. Well, he could get one glass of eight ounces if he wishes it by paying eight times the price, could he?

A. Yes sir; if a man would tell me he would pay a double price for the double quantity, but I never had a man to do that.

Q. You would sell it in any kind of quantity, in any quantity?

A. I presume I would; I never had an instance to happen like that.

Q. And you never instructed your clerk to sell as much as appears in this graduate to one person in one drink?

A. No sir, I did not; absolutely no; and if you will show me the man that is doing that in my place he will walk out of my door immediately.

RE-EXAMINATION,
BY MR. McALLISTER:

Q. Doctor, one or two questions I forgot to ask you; please state whether or not your sales of coca cola vary in the different seasons of the year, that is, as between the winter and summer?

A. Yes sir. We sell more in the summer time than we do in the winter time.

Q. Could you state about how much more you will sell

in the summer than you do in the winter, that is, how much it falls off in the winter?

A. Well, I will sell possibly three times as much in the summer as I will in the winter.

Q. State whether or not doctor weather conditions generally influence the demand for coca cola?

A. Yes sir.

Q. In what kind of weather is the demand for coca cola? greatest?

A. Hot weather on extremely hot days we will sell more coca cola than we do on cool days.

Q. Now, those pumps, doctor, that you use in drawing the syrup; how far do you have to push down the lever to get an ounce — is it necessary to push it all the way, or to push it only a part of the way?

A. To push it just one push.

Q. Entirely down?

A. Yes sir; that pump has got a little knob on the end of it that sets in that position (indicating) and the idea is to push it down until you get an ounce and then it works up again.

Q. State whether or not if the boy should punch it or push it only half way down he would get a full ounce?

A. No, he would get half an ounce half way down; that is sometimes the necessity for pushing it may be twice.

Q. Now, if the boy should push the lever half way down twice, how much would he get?

A. He should get an ounce — half way twice.

Q. Yes?

A. He ought to get one ounce.

Q. Doctor, are there any other drinks or substances generally that are not palatable to children that grown people find palatable?

A. Oh yes, Hires Root Beer is one.

Q. Hires' Root Beer is not palatable to children?

A. No sir, at least they never call for it.

Q. Now, doctor, as a man familiar with soda fountain business, and with the trade generally in coca cola and other soft drinks, I will ask you whether or not the average purchaser who calls for "dope" does it with the expectation of getting a narcotic or an opiate?

A. No sir, he does not.

Q. Now, I mean to say when a person calls for coca cola by the name of "dope," when he calls for "dope" meaning coca cola, does he expect to get either a narcotic or an opiate?

A. I don't know what his mind; from my own individual standpoint I don't think he does; he just calls for that

specific drink.

Q. State whether or not the manufacturers of this drink have ever advertised it as "dope?"

A. No sir.

Q. Or as "coke"?

A. No sir.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. You don't know what is in this coca cola syrup?

A. No sir. It has always been suggested caffeine, but whether that is in it or not I couldn't swear.

Q. You say that this graduate before you that purports to contain coca cola syrup and as having come from your fountain in this morning contains how many ounces?

A. Two and a half ounces.

Q. By weight, what is the size of that graduate?

A. Eight ounces, half a pound.

BENSON RIPPETOE,
the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION,
BY MR. McALLISTER:

Q. What is your business, Dr. Rippetoe?

A. Pharmacist, — druggist rather.

Q. Retail druggist?

A. Yes sir.

Q. With what firm or business house are you connected?

A. DeMoville Drug Company.

Q. How long have you been in the retail drug business?

A. About twenty years.

Q. How long have you been in the business in Nashville, doctor?

A. Twelve years, I believe, sir.

Q. How long have you been with the DeMoville Drug Company?

A. I think I have been there about eleven; I believe I was out a little while, possibly a year.

Q. What is your connection with the DeMoville Drug Company?

A. Manager.

Q. State whether or not the DeMoville Drug Company with which you are connected operates a soda fountain?

A. They do.

Q. How long has it operated a soda fountain?

A. Before my time, I don't know about that.

Q. Every since you have been with it?

A. Yes sir.

Q. What are some of the principal drinks dispensed at the soda fountain of the DeMoville Drug Company?

A. Pepsol, coca cola, ice cream and all fruit syrups pretty well, all the popular fruit syrups, the usual line dispensed in soda fountains.

Q. How is the drink known as coca cola ordinarily served to the customer at the fountain?

A. We serve usually an eight ounce glass, that is our standard size and try to use the marked glasses that are graduated, I believe to one ounce.

Q. One ounce of what?

A. Of the syrup, the balance is water. That is our customary. Of course it varies some, between a half and a quarter of an ounce in a glass but eight ounces is what we are supposed to have.

Q. Now, where and by whom is the syrup which is the basis of this beverage manufactured?

A. In Atlanta, Georgia, that is the headquarters for it I believe.

Q. And by what company or what manufacturer?

A. The Coca Cola Company, as we understand it.

Q. How long have you been acquainted with the drink known as coca cola?

A. Well, I suppose about 15 or 16 years. Up to that time I was not in a store that had a soda fountain at all.

Q. Now, please state whether or not there has ever been within your knowledge any other drink, beverage or food product placed on the market under the name of "coca cola" other than that manufactured by the Coca Cola Company, of Atlanta, Georgia?

A. No, I don't know of anything else by that name sold on the market.

Q. To what extent has the drink known as coca cola been advertised?

A. Well, it has been advertised considerably more than any other, or probably more than all the others put together, as far as I know or would judge from appearances.

Q. And by whom has this advertising been done?

A. By the Coca Cola Company, I suppose.

Q. What is the nature of this advertising, doctor, what kind of advertising is it, how does it generally appear?

A. Well, it appears usually on the sides of houses, in other display matter and then it is advertised considerably by giving away complimentary tickets, you know, which are redeemed at the soda fountain.

Q. In the display advertising substantially what lan-

guage is used in the advertising?

A. Well, the ruling words are "Coca Cola."

Q. State whether or not there has ever been within your knowledge any other drink advertised as coca cola by any other manufacturer than the Coca Cola Company, of Atlanta, Georgia.

A. No sir, I do not know of any.

Q. Doctor, what is your observation as to the number of glasses of coca cola that the average man who drinks it at all will drink in the course of a day?

A. Well, that is mighty hard to state accurately. I suppose the average man will drink, oh, I should think from four to six glasses a day, depending largely on his inclination to take liquids. If I were drinking coca cola I would drink fifteen or twenty glasses a day; I drink that much water, and there are lots of people who only drink one or two glasses of water a day.

Q. What effect does weather conditions have on the demand for coca cola?

A. Well, it has a very decided effect; you take bad weather, or a real bad wet day and our trade will fall off probably to one-third, or I had better say will fall off two-thirds, and a good hot day come back to normal; while a clear cold day is not so detrimental as a wet warm day, strange to say.

Q. Detrimental to what?

A. To the soda trade.

Q. Please state whether or not the trade or business in coca cola fluctuates with the seasons?

A. Oh yes.

Q. To what extent and how?

A. Well sir, we have a great deal more business in the hot season than we do in the cold season.

Q. Now, approximately how much more in hot weather than in cold weather?

A. Well, I would put it at about twice as much in hot weather.

Q. Do you drink Coca-Cola yourself, Doctor?

A. No, sir, I do not.

Q. Have you ever drank it?

A. Oh yes.

Q. Well, to what extent did you drink it when you did?

A. Oh, occasionally, I am sir not a drinker of any kind of soda water; I drink pure water is all I ever drink sir.

Q. State whether or not it was your experience that drinking Coca-Cola created a craving or desire for drinking a larger number of glasses of Coca-Cola?

A. Why no, it never created a desire with me more

than just simply an inclination to quench my thirst. I remember an instance some time ago—I never go, of course behind the soda fountain to dispense anything, but I happened to know where the Coca-Cola syrup tank was and I use to go to that because it was the only one I could find conveniently, and I always got there more because it was convenient than because I liked it, more because it was more convenient than water.

Q. To what extent do children call for Coca-Cola at soda fountains with your observation?

A. Very very sparingly; very few children call for Coca-Cola.

Q. What is your observation as to the relative popularity among children who frequent soda fountains, Coca-Cola with ice cream and soda drinks?

A. Well, I should think it would be from ten to fifteen per cent.

Q. State whether or not, Doctor, there has ever been any case within your knowledge of any person being injuriously effected by drinking Coca- Cola?

A. I don't know of any.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Are you a practitioner of medicine?

A. No sir.

Q. You are not a licensed physician?

A. No sir.

Q. Where is your position in the store, is it behind the partition or near the fountain or where with reference to the fountain?

A. Well, my position in the store is that of manager and of course that puts me as much one place as another—you might say all over the store, while I am, of course,expected and might a great deal of our trade which of course is up in front part of the store near the fountain—as a matter of fact I try to watch over everybody, well everything that comes in and in all departments.

Q. Now, as to children do you mean to say you don't have a patronage from them?

A. Yes, a patronage from children.

Q. News boys and messenger boys?

A. Yes, sir, that is our principal children patronage more than prolific around our place there.

Q. Have you not observed that the news boys and messenger boys in the main do ask for Coca-Cola?

A. No sir, on the contrary to that in my judgement they eat mostly ice cream.

Q. I know, that is what they eat, but I am talking about what they use as a drink?

A. It is a question of spending a nickle with them; I don't know about the drink, they can drink water; they can get a glass of water on the side and get the drink and the ice cream and all for the same price. I think that the newsboy will take considerably more of the ice cream than he will of Coca-Cola; of course it is a matter of my judgment, but that would be the way I would judge it was, the way I would say.

Q. But have you made any special observations?

A. No sir, none whatever.

Q. Now, you know it to be a fact that the sales of Coca-Cola are much more numerous than that of any other soft drink?

A. Yes sir.

Q. Now, why is it that that is true as to persons who are grown up or those that are beyond the age of childhood when children do not take Coca-Cola to such an extent; or in other words, what is the reason for this difference between children taking it and those of more mature years?

A. You mean the reason for grown up people taking it and children don't?

Q. Yes.

A. I would base that on the fact that grown people will read advertisements; that is also a fact regarding patent medicines, while I won't take it, people buy it and take it every day but if the advertisement is withdrawn from a very popular proprietary medicine the sales will drop off until in time you do not hear of it.

Q. You find that newsboys and messenger boys smoke cigarettes?

A. Yes sir.

Q. And buy and eat other things that are detrimental?

A. Yes, sir.

Q. Now then, why is it that they do not take Coca-Cola and when it is advertised and other people of more mature years do take it, do you know?

A. Well, I explained that to you awhile ago, from the fact that the newsboy wants to get all that he can for his money; if he can get a saucer of ice cream and a glass of water on the side he is not going to spend that money for a drink, that is presumably the reason; it is all a matter of supposition on my part as to whether that is why he does it or does not, but I would take it that that is so.

Q. Does your store have a patronage from shop girls and girls from department stores?

A. Not very much; we are not in that district and

don't get much of that.

Q. And you don't pretend to say what drink is most popular with them?

A. No, I couldn't intelligently give you a report on that because I don't see enough of it. We have a sparing amount that come out of the office building across the street from us, but I reckon you would hardly class them as the same class as shop girls, a little different, a little higher grade.

Q. As a rule persons beyond the childhood stage consume more Coca-Cola than they do of any other soft drink beverage?

A. Well, no; I couldn't say that sir; I suppose if you put it to any one drink that would apply, but to take it as a total I happen to have a little data on that for this reason; of course, you know we watch the departments to see whether things are paying out or not, and sometime ago I noticed that we were buying an excessive amount of ice cream products, and when I figured up what we ought to have from the cream I found that the cream ran about fifty per cent of the counter sales; against this you have to take into consideration other soft drinks, lemonade phosphates and the limeades. In the summer season we use a barrel of limes every two weeks; they will average from twenty five hundred to three thousand limes, and each one makes a drink, and this is a pretty heavy amount of one item; and if you take it all in that way I don't suppose you could considder that it would begin to cope with all the other drinks put together, while it would more than do it with any particular one drink, but to take it as a whole it does not begin to.

Q. You serve lemon or lime in Coca-Cola don't you?

A. Not very frequently.

Q. Isn't it called for often?

A. No sir, some lime juice occasionally, but limes are mostly served with mint with us, we make a mint-limeade, we call it.

Q. Then they do not call for Coca-Cola with lime juice?

A. Yes, sir, occasionally, but not so much; just a few drops, but we do not encourage it, because that would be giving them something extra for their money.

Q. What character of fountain is at your place?

A. How was that?

Q. What character of fountain have you at your place?

A. Well, do you mean the name of the manufacturer of the fountain?

Q. No, I mean to ask as to the service, whether or not it is attached to the wall or is it the counter service? What

is known as the counter service?

A. It is the counter service.

Q. Now, how is the flow of the Coca-Cola syrup regulated, by what means?

A. It is a pump with a lever and the pump has a gauge on it.

Q. Now, when a customer calls for a double header or an extra strong glass of Coca-Cola, how does the boy arrange to serve him?

A. Well, our instructions to the boy, sir, in case people want it extra strong, or ask for it extra strong, is to make the bluff, and to give him as little as possible, but whenever we have given him what is going to him, that is all that he is entitled to—whenever we have given any one over the required amount, which is from one ounce to an ounce and a half, we are not making any money, and when it goes above that we do not want his business, and while it is true like all other houses that we have to contend with employees not doing as they are told, that is their negligence.

Q. What do you mean by making a bluff?

A. Well, in other words, we will say you come up to the fountain and ask for a Coca-Cola and ask that it be made extra strong, and the boy has already drawn the syrup, if he slips it back there and makes a bluff at it you don't watch him, and he don't have to put much in there to satisfy you. Now, there is another way of looking at that too—a great many people think they want more for their money than they are entitled to, and they ask for more to be put in when they really could not tell the difference, or tell any difference, but it is simply a desire to get a little more for their money than they ought to have; they can't tell the difference; I have seen it worked on them and not make any holler about it, and I think it is more in the hoggish inclination than anything else.

Q. And you have instructed your employees when an extra strong Coca-Cola is called for, or a double header, simply to run the bluff and make the bluff, for the boy to touch the thumb plate as if to draw the full discharge when in reality they are not giving the full quantity?

A. Yes, that is the idea.

Q. You say that is the idea?

A. Yes, that is one of the unfortunate things about the front service, they see too much; if I had it to do over again I would put in the old wall fountain with the boy between them and the counter, so they could not tell what he is doing.

Q. I will ask you, Doctor, what other drink, if any,

you have ever known of being called for extra strong, or a double header, or extra quantity of mixture. except Coca-Cola?

A. Well, they do it to a certain extent with a local drink called Pepsol; I suppose they imagine they are getting a digestive agent, and a fellow who feels real bad thinks a little more Pepsol would be better. I had a case a few days ago in the store—it was an absurd case, but it is one that will explain my position as to the desire to get more than one is entitled to. We had a customer who drank grape juice. The average grape juice bottle is about three ounces, the ten cent bottles; we serve it from a large bottle, making it a little more profitable to the house, and he insisted on a little more grape juice mixed with carbonated water from time to time, and the boy came back and told me the man had raised the grape juice requirement until it became unprofitable. I told him rather than hurt his feelings to put him back on the individual bottle, that is a bottle that he knows is all he is entitled to, and even that didn't satisfy him, but he got himself a pint bottle of grape juice and drank it at his office. It shows you that in that case this man was calling for a little more, and I suppose it was that same disposition to get a little more for the money than he was entitled to. And in that case the same proposition comes up again, to cut down the expenses, to keep it within the bounds of profit.

Q. You handle drugs?

A. How?

Q. You handle drugs?

A. Yes sir.

Q. Now, you know what caffeine is?

A. Yes sir.

Q. That is a drug?

A. Yes sir.

Q. What is its effect on the human system?

A. Well, its effect is supposed to be a stimulant the way I have always figured it, from the authorities on the subject.

Q. Have you ever tasted it to know what it was or its taste?

A. No.

Q. Or administered it?

A. Yes, I have seen it administered—the fact is I use to dispense it to a man in this town in five and ten grain doses for his own personal use, to a man who took it, a physician.

Q. Did the physician take it himself?

A. Yes, in five and ten grain doses.

Q. Did he take it as a stimulant?

A. Yes, I suppose so.

Q. Now, at your fountain, it is customary to first draw the water in the glass and then put the Coca-Cola contents in?

A. No, the reverse, the syrup is drawn first and then the water.

Q. Was it not administered during this very day by putting in the water first and then the Coca-Cola afterwards?

A. Well, I couldn't say whether it was or not, but I am giving you our instructiins; that is done sir from this reason, that if you draw your syrup in first and draw your water in without disturbing the syrup and stir it afterwards, you get a much better drink than if you drew it the other way. If you let the boy do it he will draw it the other way; he saves himself as much as he can.

Q. He will draw the water first?

A. Yes sir.

Q. If you let him do it?

A. Yes sir, he will do that every trip, and if he don't think you are watching him he will pull it across the fountain but our instructions are very specific in that respect there.

Q. What does a customer really get when he presents himself at your fountain and calls for "dope", Doctor?

A. Well, he gets Coca-Cola, that is the only thing we have on the fountain that is served; but the Coca-Cola people claim that a great many other substitutes are run in on them, but we do not use it—we do put in water on them but we don't substitute on them. We cut it 25 per cent water on account of the same thing we talked about awhile ago, wanting more for the money—we use water.

Q. Then you buy Coca-Cola syrup and mix three parts of the syrup to one part of water?

A. Yes sir. We have always done that.

Q. And you have that arrangement with the Coca-Cola Company?

A. No sir, that is done after it is taken from the barrel.

Q. Well, I say they know that is the way you dispense it?

A. No, I don't know that they do; I couldn't say that; if they were to come in and ask the question I don't know that I would tell them so; it is none of their business or affair after it becomes our property, we can dispense it any way we want to or please to.

Q. What is the style of your business, doctor, is it a corporation or a partnership or what?

A. A corporation.

Q. And what is the corporate name?

A. The DeMoville Drug Company.

Q. How long have you conducted business under that name?

A. I think they were incorporated about ten or twelve years ago; couldn't speak positive.

Q. Now, what business were you in before you went with the DeMoville Drug Company?

A. In the drug business.

Q. And where?

A. Six years in Chattanooga and a couple of years in Wartrace, Tennessee, and I believe I was a couple of years—I would not swear in this place about two years of the time I recollect.

Q. Did you ever own any stock in the Coca-Cola Company?

A. No sir.

Q. Does your corporation own any stock in it?

A. No sir.

Q. Do you know of any of the members of the corporation owning any stock in it?

A. I do not.

Q. Who are the local distributors here of the Coca-Cola Company?

A. I only know of two—Berry DeMoville and Company and Spurlock, Neal and Company; I think there are others here, but I don't know who they are.

Q. Do you dispense complimentary tickets at your store?

A. No sir, we never dispensed the tickets; they do that themselves.

Q. Do they do so at your store now?

A. No sir.

Q. How long since any have been dispensed there?

A. Well, I don't know; it seems to me that every month we get a few tickets, more or less; I have not noticed any great amount of tickets in several months; whether any there or not I couldn't say now, but the cashier takes them in and she gets a bunch of them brings them back to me, but I have not noticed much of them in the last four or five months, but we have some every month.

Q. How are they distributed?

A. I do not know.

Q. You do know in a general way when you get these complimentary tickets that they are sent out by the Coca-Cola Company from Atlanta, and that you take them as cash and send them in turn to the Coca-Cola Company

and get credit for them, is that the method of doing that business?

A. Well, I don't think so; I think their man, or representative, probably comes to the city and distributes them, that is my opinion.

Q. Now, what does your company get in exchange for the tickets?

A. We get five cents in money.

Q. And from whom?

A. The Coca-Cola people, not from them either, we turn ours in to Spurlock, Neal and Company, their local jobbers here.

Q. Ladies don't turn out as well in inclement weather of course, as they do in weather that is fair and inviting?

A. No sir.

Q. And ladies patronize very largely your establishment, that is your soft drink department, don't they?

A. No, sir, have not got as good a ladies patronage down there as the average store.

Q. What does your patronage consist of, the Coca-Cola drinkers, what class of people are they?

A. They are mostly men.

Q. To what class do they belong, are they clerks, or what?

A. They are people of every imaginable class, clerks, lawyers, business men and all classes of course; the wholesale district is right below us, you know. That street there is mostly patronized by men, it is a stag street or you might call it that.

Q. How many boys are on duty at your fountain?

A. We have through the day four boys at work behind the fountain.

Q. What ages are they?

A. Well, I suppose on an average say, 18 20 and 25 and I suppose the oldest fellow is probably twenty eight years old.

Q. You would hardly call those from 20 to 28 boys?

A. Well, we call all of them, even if he was forty years old, call him "soda fountain boy" the original soda fountain man was a boy and it goes down with that; everything classed as a boy in that.

Q. Now, you say if you drank or were to drink Coca-Cola you probably would drink fifteen to twenty a day?

A. That is, if I were to drink it to quench my thirst because I drink that much water a day.

Q. And you think the average consumer of Coca-Cola takes from four to six glasses?

A. I should judge about that, yes.

Q. You see the men in your store during the day, your regular customers approximately that number of times do you?

A. Yes, I should suppose so.

Q. What is the number of employees in your store?

A. Run along about twenty eight people, including the porters, in all included.

Q. And you have general supervision over them?

A. Yes sir.

Q. And aside from watching these twenty eight people why you also wait on and welcome your customers as well?

A. Yes sir, a part of the day that every man like all businesses of that kind has to take his turn on the floor—you might say through the dinner and supper hour I take my turn on the floor the same as the clerks in the house and wait on customers, wait on you as quick as anybody else. Drug store clerks have to work a little harder than in your line of business.

Q. Do you know an article generally termed by the trade "coca" and which has been for years?

A. Yes sir.

Q. What is the chief constituent of coca, the active principle of it, so to speak?

A. Do you mean the coca leaf or the powdered coca leaves that you make fountain chocolate out of?

Q. I am talking about (spelling) coca.

A. I don't understand your question as you put it in there. I believe you asked me what was the use of that.

Q. I asked you if you were acquainted with it?

A. Yes sir, I am.

Q. Now, I ask you what is the active principle of coca, the chief ingredient of it?

A. Yes sir.

Q. And what is the active principle of that?

A. Well, the active principle of cola I wouldn't say because I don't think that—I wouldn't say because I don't know; I don't recall what the active principle of kola ——

Q. You know what kola is made from?

A. The kola nut.

Q. Do you know what effect it has on the human system?

A. It has a stimulating effect.

Q. What effect has cocaine?

A. It also has a stimulating effect.

Q. Coca-Cola is sometimes called "coke" by a customer who presents himself at your fountain, and when he calls for "coke" you know he means Coca-Cola?

A. Yes sir.

Q. How long have you known of the substance "coca" and also "coca", ever since you have been in the drug business?

A. Yes sir.

Q. They are well known substances that have been known to the drug trade for years and years?

A. Yes sir.

Q. There is not any limit on the sale or number of glasses that a customer can get in your store?

A. No sir.

Q. He can get it as long as he can get nickles?

A. Yes, that is the idea exactly; we have no limit.

Q. And, if he wants it extra strong, why you are willing to make it extra strong to the extent of double quantity, if he pays the double price?

A. Yes, sir that is the idea.

Q. And if he does not you make it only a very little stronger and run the bluff?

A. I have always told my men whenever a man wanted anything or went beyond the limit of profit it was time to turn him over to a competitor, and let him sell him awhile, is the way I feel about those things.

Q. You do have a double-header called for very frequently?

A. I suppose so, yes.

Q. And by that you mean or you understand an increased quantity of coca-cola syrup?

A. Yes, sir.

RE-EXAMINATION,
BY MR. McALLISTER:

Q. Doctor, I don't know whether I asked you awhile ago. How long, as far as you know, has coca-cola been on the market?

A. Well, I think that I answered that question somewhere awhile ago, that to my knowledge it has been sixteen years, as long as I have been with a drug store that had a soda fountain.

Q. How many gallons of coca-cola syrup do you handle in the course of a year?

A. I think we run about two thousand, sir; I believe our record has been that for the last seven years.

Q. Where is your place of business located in Nashville?

A. At the corner of Church and Fourth, Fourth Avenue North.

Q. State whether or not that is in the business or residence section of the city?

A. The business section.

Q. How do your sales of coca-cola compare with that of other druggists in the city, as to the number of gallons you handle a year?

A. I don't know about that, sir; I would judge that the people next door to us run us a pretty close race, probably do as much as we do; as to other stores, I couldn't say, I really do not know much about then and don't see much of them. I do see every year a report from the Coca-Cola Company on the town but have never paid any attention to it.

Q. Now, doctor, I believe you stated that caffeine was a drug or recognized as such?

A. Yes, sir.

Q. State whether or not rhubarb is also recognized as a drug?

A. Yes, sir.

Q. State whether or not ginger is also recognized as a drug?

A. Yes.

Q. Please state whether or not the fact that a substance is a drug necessarily implies that it is injurious?

A. Oh, no, it does not, no sir.

Q. Now, I will ask you also, doctor, to state whether or not the substance known as coca-cola, this product known as coca-cola, is called "dope" by its manufacturers, and whether or not it is ever advertised as "dope"?

A. No, I have never seen such an advertisement of it.

Q. State whether or not it is ever advertised as "coke"?

A. No, sir.

Q. Please state whether or not the average customer who calls for "dope" or "coke" does so with the expectation of getting a narcotic or opiate?

A. Well, as I understand it, he calls for it with the expectation of getting coca-cola.

Q. State whether or not he does so under the impression that, and I am asking you now as a man who is familiar with the soda fountain business, whether or not there is an understanding on the part of the customer when he calls for coca-cola as "dope" that it contains a narcotic or a drug?

A. I don't think he considers anything about that; I think it is a matter of habit, you might say, I don't think he stops to figure out what he is getting or pays any attention to that part of it.

Q. I will ask you if "dope" is the name of the drink?

A. Sir?

Q. Whether or not "dope" is the name of the drink?

A. It is not.

Q. Then why do people call for it under the name of "dope"?

A. Well, I don't know why that is. It is pretty hard to tell how these things originate.

Q. Now, doctor, you have heard a child called a "kid."

A. Yes, sir.

Q. Is it generally understood when you call a child a "kid" it is a young goat?

A. No, sir.

Q. Well, what is the substance known as coca, what is coca?

A. Coca is a herb or plant, the part we use or are supposed to use is the leaf that grows in South America.

Q. Then, do I understand you that when a customer comes into the store and calls for coca that he is given the coca leaf?

A. No, sir, if he calls for coca we would think that he wanted the powdered red chocolate which is used to make a beverage known as breakfast coca.

Q. Now, if one of your customers or if the average customer desired to get coca leaf from you under what name and how would he call for it?

A. I suppose he would come in and call for coca — I don't recall selling a man a package of coca leaves in my life.

Q. Doctor, state whether or not there is on the market and recognized by the drug trade a substance known as coca other than the coca plant?

A. No, I don't know of anything.

Q. Now, what is kola, doctor?

A. That is a nut or plant.

Q. Do you mean to say it is the nut of the kola plant?

A. What did you say?

Q. Do you mean to say it is the nut of the cola plant?

A. Yes, sir.

Q. How would a customer desiring to buy cola nuts call for them?

A. He would call them cola nuts.

Q. Then do you understand there is a substance generally recognized among the drug trade as cola outside of the cola nuts, other than cola nuts?

A. Yes, sir. Coca is the leaf of the coca plant, cola nut is the nut of the cola tree, and when he would want coca leaf I suppose he would call for "coca leaf" and when he wants the cola nut he calls for "cola nut."

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Now, this cocoa you say you sell in the form of a

powder is spelled (spelling) c-o-c-o-a, but the (spelling) c-o-c-a that contains cocaine or the active principle of cocaine is spelled (spelling) c-o-c-a?

A. Yes, sir.

Q. And if (spelling) c-o-c-o-a, that is coca was called for, you would give the powder?

A. Yes, sir.

Q. And if coca were called for that is cocoa—but if he spelled it out (spelling) c-o-c-a you would give him the coca leaf, but if he didn't you would give him the powder?

A. I do not think anyone would attempt to call for a thing of that kind without prefixing it with the leaf.

Q. Is the name (spelling) c-o-c-o-a?

A. Yes, sir, coca.

Q. It is not set down there as "coca" leaf?

A. No, sir.

Q. It is set down there as "coca"?

A. Yes, sir, that is true.

Q. Then it is recognized by the drug trade as being "cocoa" and not "coca leaf", and by medical men as well?

A. I think you will find if you look into the current jobbing list, you will find that it is listed under coca — leaf ——

Q. (Interrupting) I am speaking of medical men and not the current jobbing list. I am speaking of medical men, the practitioner and pharmacists, don't they very readily recognize a distinction between "cocoa" and "coca?"

A. Yes, they do, but we were talking from a trade standpoint, I understood so awhile ago, and I still maintain my position, if you were to come into my place I would naturally suppose you wanted cocoa, notwithstanding that you might speak it more plainly than the average person does — it is not customary to have calls for coca leaves or coca, but I do sell powdered chocolate.

Q. Because that is served as a harmless beverage?

A. Yes, sir.

Q. And the other is a very powerful drug?

A. I don't know its power in that state; when you get it reduced to cocaine it is a different proposition; it would take quite a few leaves to make much cocaine.

Q. Cocaine is a very powerful drug, though?

A. Yes sir.

Q. Now, you say that in your opinion, doctor, the average customer who calls for "dope" or "coke" or coca cola indiscriminately, as they use these terms, don't know what he is getting?

A. No, I said he expected to get coca cola.

Q. But I thought you said when he called for "dope"

that he didn't know what he was getting?

A. Well, I don't think I put it that way. I think that came up when the question was asked me as to whether or not he expected to get the active principle of caffeine — it was brought in there some way, and I remarked that I didn't think he thought anything about that part of it but merely called for a beverage he had been drinking, but if he comes in and calls for "dope" or "coke" or "coca cola" we believe as honest business men that he wants the drink known as "coca cola," and for that reason if a man was to come in and call for Turkish Rhubarb, we try to give that and nothing else in its place.

Q. The active principle of caffeine is a stimulant, a brain stimulant?

A. I don't know the principle, that is its name, though.

Q. Well, that is the result of its use?

A. Yes sir.

Q. It is a stimulant?

A. Yes, sir.

Q. And that is the effect it has on the average man that takes it?

A. Yes sir.

Q. And if a man takes from four to six glasses a day of coca cola containing from an ounce to an ounce and a half of the syrup, he gets to that extent that much more stimulation than normal?

A. Yes, if it has caffeine in it.

Q. What do you mean by the term "drug" doctor, define it please?

A. Well, a drug is a substance, as we understand it in the general way, something that is used as a remedy to relieve the ails of human kind.

Q. What is caffeine then, used to relieve what kind of ailments?

A. Well, caffeine is used in headache to some extent, and it is sometimes, I suppose, given to counteract the ill effects of depressing headache medicine, that was always my notion of it, and it enters into the composition of the most of these depressing headache remedies on the market for that reason.

Q. Do you dispense caffeine at your store, that is in the drug form, that is where it is not taken as coca cola, without the prescription of a physician?

A. Yes sir.

Q. Would you sell it to the average consumer?

A. Anybody who has the price.

Q. And anybody who wants caffeine you give it to them?

A. Yes sir, anybody who has the price.

Q. Now, what do you, doctor, understand as "dope" aside from coca cola, does it have any other meaning?

A. Well, when we use to sell cocaine here, before the law stopped that, they used to call for "dope" and expected to get five cent powders; that is the only case, I believe, of anything else being used by that, but it has been sometime ago, and I don't know just to what extent.

Q. That was stopped by the law?

A. Yes, of the State.

Q. And now then, when "dope" is called for you understand it is coca cola?

A. Yes sir.

RE-EXAMINATION,
BY MR. McALLISTER:

Q. Doctor, are you familiar with athletic parlance?

A. No sir.

Q. State whether or not you have ever heard the word "dope" used in a sporting sense?

A. Only among race horse men, in horse racing.

Q. Now, what meaning did the word have in that connection?

A. Well, with a race horse man when he says "dope" he means to give a horse the various formulas that they carry with them. I have seen a good many of them. They are composed of, I believe the latest now is heroscine — nitroglycerine and let me see what else they get out — I saw one not long ago, a fellow wanted it put up and I turned him down on it, and strychnine I think they use.

Q. Have you ever heard the word used as indicating advance news on sporting events, getting the dope on a certain race?

A. Yes, that means to get a pointer as to which horse is likely to win, as I understand that.

Q. Then, as a matter of fact, the word "dope" is a word that has a very wide limit as to its meaning, has a variety of meanings?

A. Yes sir. It is supposed to put you next in other words, to make you wise.

Q. Doctor, if you remember how does the United States Pharmacopae define the word "cocoa", do you recollect what it has to say or says about cocoa?

A. No, I don't remember, I have not seen it in 20 years.

Q. I mean as to what it is, not as to its effects?

A. No sir.

Q. A description of the compound?

A. Well ——

Q. No, does it state, what I am trying to get at is this:

whether or not the United State Pharmacopea describes it as a plant or as a commercial product known to the trade under that name?

A. Why, it describes it as a plant, as I remember it; I don't know much about its commercial use.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. This heroscine you spoke of administered along with nitroglycerine and some other substances, strychnine, I believe, to race horses, is a very powerful drug itself, is it not?

A. Yes, it is.

Q. Now doctor, what is the object of administering that mixture or compound to race horses?

A. I think it is a stimulant.

Q. And they by doping them will get unusual amount of activity?

A. Well, I think so.

Q. And accelerate speed?

A. Yes, I suppose so.

Q. And a horse is said to have been doped when he is given that abnormal stimulant?

A. Yes sir.

RE-EXAMINATION,
BY MR. McALLISTER:

Q. Have you observed, doctor, that coca cola has a similar effect to nitroglycerine or heroscine?

A. No sir, none in the world.

Mr. Candler: I will read the deposition of JOSEPH M. CONNABLE, the first witness called, of lawful age, first duly sworn, deposed:

DIRECT EXAMINATION,
BY MR. McALLISTER:

Q. Where do you live, Mr. Connable?

A. Memphis, Tennessee, 1002 Reyner Avenue.

Q. What is your business?

A. In the retail drug business.

Q. How long have you been in that business?

A. Since January, 1907.

Q. State whether or not you operate a soda fountain in connection with your business.

A. Yes, I do.

Q. How long have you been familiar with the soda fountain business?

A. Since January, 1907.

Q. Please name, Mr. Connable, some of the principal

drinks dispensed at your soda fountain.

A. Well, ice cream sodas of all kinds, different flavors; Coca-Cola, Pepsol, Jersey Creme, Chocolate Milk.

Q. How is the drink that you have called "Coca-Cola" ordinarily served to the customer at the fountain, Mr. Connable?

A. Supposed to be one ounce of syrup and from five to six ounces of carbonated water, sometimes with crushed ice and sometimes without; sometimes with a little flavoring extract, such as lemon and orange, and sometimes without.

Q. Where and by whom is the syrup which is the basis of this drink made?

A. The Coca-Cola Company, Atlanta, Georgia.

Q. How long have you been acquainted with this drink?

A. I have been acquainted with it ever since it has been on the market.

Q. And how long is that?

A. We have been selling it, the people I am with since I have been with them, since January, 1907.

Q. How long has it been on the market?

A. Well, I would say twelve to fifteen years, possibly longer, I have no means of knowing absolutely.

Q. Please state, Mr. Connable, whether there has ever been within your knowledge any drink, beverage or food product placed upon the market under the name of Coca-Cola other than that manufactured by The Coca-Cola Company of Atlanta, Georgia.

A. No, none to my knowledge.

Q To what extent has the drink been advertised within your acquaintance with it?

A. Well, very extensively, and more so than any other drink we have ever handled.

Q. Describe as nearly as you can the general nature of this advertising, Mr. Connable, what does it consist of?

A. Well, newspaper advertising, free tickets calling for free drinks at the fountain; bill board advertising and window displays, and every variety, I don't know I can remember them all just at this time.

Q. How do these advertisements usually read?

A. I believe they generally call attention to the fact that Coca-Cola is a refreshing drink, and invigorating, I don't know that I can specify it in any other way now.

Q. State whether or not you have ever known of any other drink, beverage or food product being advertised as Coca-Cola other than that manufactured by The Coca-Cola Company of Atlanta, Georgia.

A. I don't know of any being advertised as Coca-Cola.

I know that there is a great deal sold us—I wish to change that, please, sir (addressing stenographer.) — that a great deal is offered us for sale by people claiming to sell a drink that is made the same as Coca-Cola and claiming that we can substitute that but we never substitute and don't handle those drinks unless they are sold directly in the name or under the name by which they are advertised and sold us.

Q. Now, what has been your observation, Mr. Connable, as to the average number of glasses of Coca-Cola that a man who drinks Coca-Cola at all, will drink in the course of a day?

A. That would be hard to state an wise accurately but we have customers that drink from one to three and four, but when you say on an average I don't suppose it would be over one and a half or possible two, from my observation.

Q. Please state, Mr. Connable, what your observation has been as to whether or not drinking Coca-Cola creates in the person who drinks it a craving or desire for a larger number of glasses of Coca-Cola or increased quantities of Coca-Cola.

A. I wouldn't say that it created a desire any more than any other drink; as for myself, it creates a desire not to want any more. The Coca-Cola sold at our fountain is sold to the customers about the same as any other drink; we have some who overindulge in chocolate milk, and the milder drinks the same as Coca-Cola or any drink for which we buy the syrup.

Q. How is chocolate milk made, Mr. Connable?

A. From an ounce to an ounce and a quarter of chocolate served from five to six ounces of milk.

Q. Sweet milk?

A. Yes, sir, and never served with ice unless called for by the customer; ice kills the chocolate flavor.

Q. Now, what is the relative popularity at your fountain of chocolate milk and Coca-Cola?

A. Why, we sold last year approximately one thousand gallons of Coca-Cola syrup and the last twelve months we sold 45,000 drinks of Chocolate Milk. The reason I know this I have kept a record of the milk bottles caps that we used at the fountain as we serve each drink from an individual bottle of milk.

Q. About how many gallons of chocolate syrup would the forty-five thousand drinks of chocolate milk constitute?

A. I can't give you that figure without figuring it ont.

Q. Well, I mean approximately.

A. Chocolate syrup runs from an ounce to an ounce and a quarter per drink; 128 ounces to the gallon of course, but as a rule we use a little heavier quantity of chocolate than we do of Coca-Cola to the six and seven-ounce glass.

Q. State whether or not, Mr. Connable, there has ever been a case within your personal knowledge of anybody being injuriously affected by drinking Coca-Cola.

A. There never has to my knowledge.

Q. When a man wants a glass of Coca-Cola, by what name does he usually call for it, Mr. Connable? I mean generally and usually speaking.

A. Coca-Cola.

CROSS EXAMINATION,
BY MR. MILLER:

Q. Now, when he calls for "Dope" what does he mean or what do you give him?

A. Coca-Cola.

Q. How many services do you have at your fountain?

A. Three.

Q. How many serving boys?

A. Three. I mean by that we have three men that have different hours, sometimes we split the hours but two of them as a rule all the time, but sometimes only one; we have three dispensers altogether.

Q. During the busy portion of the day, that is, the working hours of the day, you are supposed to have two on duty?

A. Yes, sir; we have a very large theatre business or trade, and before and after the matinees and night performances we always have two on.

Q. What character of fountain do you have, what is termed the wall-fountain or the counter service;

A. We have the counter service — ours is a hollow square practically, the counter has four sides with a hollow center and the dispensers work around the four sides.

Q. So that the customer can see the method of service and the manner in which it is emitted from the tank into the glass?

A. Yes, sir.

Q. Now, what is the means by which the syrup is passed from the fountain into the glass.

A. By a pump.

Q. Does that work with a lever?

A. Yes, works with a lever, a ball top. The server or serving boy simply touches the lever which pulls the top of the pump down and the syrup is thrown into the glass.

A. It is an automatic arrangement whereby a certain amount is emitted into the glass; in our glass, — I mean,

in our fountain, there are screws set so that a certain amount of the syrup can be given with each drink. In this particular fountain the screws are put in by myself and fastened so that each drink serves so much.

Q. But do those screws vary as the fountain wears, and does the quantity emitted increase or decrease?

A. I have never had any notice of the screws changing unless the dispensers themselves change them — I have had some trouble with my dispensers increasing the quantity of the syrups.

Q. Why do they do that?

A. Some customers want their drinks increased, and some dispensers naturally think that when they give a customer a large quantity they are helping trade.

Q. Now, your drinks, including Coca-Cola, are sold indiscriminately to whoever orders or whoever wishes to buy them, no distinction made?

A. No, sir.

Q. You sell it to the old, to the young, to the nervous and to the robust and all alike, just whatever they call for they get?

A. Yes, sir.

Q. The drinks, that is, of Coca-Cola at least, the usual drink is five cents a glass, isn't it?

A. Coca-Cola and drinks of like character; yes, sir.

Q. Do you use the graduated glass?

A. No, sir.

Q. How do you ascertain whether or not a screw has changed so as to emit a larger quantity of the syrup than you intended?

A. Well, I have charge of the fountain myself, and frequently I go over these pumps with our head dispenser to see what quantity of syrups are given. My reason for this was that at times we have had complaints from customers saying that certain drinks were not satisfactory, which caused an investigation, and again I have had times when the soda business was not profitable and that caused an investigation; for this reason I watch it myself.

Q. What is your position in your store, that of general manager?

A. I may be termed so, I have charge of the office, the finances, fountain, the cashiers, cigar department and candy department. Mr. Osborn alone has charge of the drug department; I have no knowledge of drugs at all.

Q. You are, as I understand, not a pharmacist then?

A. No, sir.

Q. Not a registered pharmacist?

A. No, sir.

Q. How many employes under your supervision?

A. Well, all employes in the store are really under my supervision.

Q. How many is that?

A. Let me see — sixteen, I think.

Q. Now, isn't it true that this Coca-Cola syrup contains such a quantity of sugary substances as that it coagulates or congeals on the fountain or pump, I mean at times, and clogs it to a certain extent so that the desired quantity is not emitted by one stroke or one push of this lever or pump?

A. I have never had any complaint of that in my experience any more with the other — I mean any more than with the other syrups.

Q. Have you had any complaint at all as to that or any other syrups?

A. Yes, sir, we have that with all syrups, especially where simple syrup is used in the making of them. We have a great deal of trouble with the top and sides of it becoming unclean or rather sticking, and have it cleaned thoroughly but no especial trouble with any of the pumps because my attention has never been called to any of the pumps in particular.

Q. Is the pump kind of a sliding metal piece ——

A. (Interrupting.) I don't know that is — I can describe it to you — it is a lever, a pump with valves, and in the bottom — I mean, when the top part of the pump is pulled down it causes — I don't know just what term to use — but causes the pump to force out a certain amount of the syrup through the neck of the pump.

Q. Now, isn't it true that this sugary substance that is in the Coca-Cola syrup will thicken gradually on the mechanism of that pump to the extent that the desired quantity or the same quantity that would be emitted when the pump is new won't be emitted after it has been in use five or six months?

A. No, I can't say that it will. I have broken more pumps and have more trouble with the pumps we use on the chocolate syrup than anything else, and I have never attributed that trouble to anything other than the thickness of the syrup. We aim to clean our pumps, all of them, regardless of what syrup they handle, two or three times a week, and so far as one syrup thickening and destroying the efficiency of the pump more than another, I have no recollection of it ever having been called to my attention other than the chocolate syrup pumps are frequently broken.

Q. How many pumps have you in your fountain?

A. Thirty.

Q. How many of them are used for lime syrup?

A. Only possibly two; I think it is two because I try to have the fountain stocked all the time with these syrups called for most frequently so that when two dispensers are on duty, the dispenser on each end can serve directly all the drinks. Now, the drinks that we use most seldom are right in the center so that each dispenser can get to them, and I think that eight of those pumps or eight of the drinks only have one pump each.

Q. What are those?

A. I can't say positively, one I am quite sure is Hires Root Beer, and another Jersey Creme, when we sold it—we don't sell it any more — Pepsi Cola — can't say what the others are, there are eight of them, I think. I would not want to mention any more for I am not sure as to what the names are.

Q. If you are correct about the eight, that would leave twenty-two more pumps?

A. No, I beg your pardon, that would leave ten or eleven more possibly because in the other twenty-two pumps I try to have duplicate syrups.

Q. What are those 22, I mean, those eleven?

A. Well, Coca-Cola; if I recollect correctly we have four pumps of Coca-Cola; two of chocolate, pineapple, strawberry, possibly peach, vanilla syrup — vanilla simple syrup, I should say. I don't remember what the others are.

Q. Then, each of these dispensers has one of the more popular drinks except Coca-Cola, and of that he has two?

A. Yes. Now, I would like to make an addition there — I don't remember whether four pumps of chocolate, I would not want to say because not clear on that.

Q. Now, you are not really very well informed about that fountain service, are you?

A. I think so, pretty well, but I don't try to keep them in mind because our stock man has charge of that syrup.

Q. Do you know what is in Coca-Cola?

A. No, sir; I do not.

Q. You say you are not acquainted with drugs at all?

A. No, sir.

Q. You don't know the effect of caffeine on the human system?

A. I do not; I have never studied it.

Q. You don't know, then, that it does invigorate, or not?

A. No, sir.

Q. But you know that Coca-Cola advertisement through

this section says that it does invigorate the human system?

A. Well, my recollection is that it is said Coca-Cola is refreshing and invigorating.

Q. Now, is the term "Dope" applied to any other substance in your store that you sell except Coca-Cola?

A. Recently other drinks have been put on the market and offered us that have been recommended to us as "Dope" — have been offered us so we could sell them whenever "Dope" was called for, but we don't substitute and when they call for Coca-Cola we give them Coca-Cola, when they call for "Dope" we give them Coca-Cola.

Q. Those are other drinks that were put on the market and were represented to you or recommended to you,— rather, that you could sell as "Dope." Now, those drinks have been put out of business by the United States Government, have they not, recently?

A. I cannot say if they have because some of them have been offered us within the past week or ten days.

Q. Do they call for Coca-Cola sometimes as "Coke" or do you know how that is?

A. Yes, I think I have heard it called for that way.

Q. And that is also an abbreviation for cocaine, is it not, — "Coke?"

A. That is an accepted abbreviation for cocaine, yes, I believe.

Q. And "Dope" is the accepted abbreviation for any drug that serves as a narcotic, is it?

A. I couldn't say when it comes to drugs; we accept a call for "Dope" as a call for Coca-Cola.

Q. Well, when you speak of a man as a "Dope fiend" you understand he is a man addicted to the use of drugs?

A. Yes, sir.

Q. Now, what sort of an arrangement is this about the gratuitous tickets or free tickets you speak of, how do you work that at your store?

A. Well, whenever a ticket is offered us calling for Coca-Cola, we serve a glass and accept the ticket in payment; these tickets are redeemed by The Coca-Cola Company people, or by any other beverage for which they call, I mean by the manufacturer of the same, at the price, the average price for which the drink is sold.

Q. Now, that is a method of advertising that has been followed by a great many soft drink manufacturers, is it?

A. Yes, sir.

Q. And it is not practiced any more so by the Coca-Cola people than it is by other soft drink manufacturers?

Q. No, I think some others are practicing it now more

than the Coca-Cola people.

Q. And you are not prepared to tell me of what substances coca and cola consist of?

A. No, sir.

Q. Because you are not a druggist or pharmacist?

A. I am not informed.

Q. Now, what business were you engaged in prior to entering the retail drug business?

A. In the real estate business, representing William M. Randolph, I had charge of his property here. I did not enter the retail drug business from a matter of choice—it was a case of self-preservation with me, that is, so for as giving it my time was concerned.

Q. Now, in the service of any drink, Coca-Cola included, when a customer calls for a double-header, or double strong or a good sized drink, what do your fountain boys do?

A. The fountain boys have instructions to serve but one portion of each syrup with each drink for the regular price. If they call for a double header, as you term it, they are supposed to give it and charge the double price; the only exception to this is capudine and bromo-seltzer.

Q. And a double header, of course, is understood to mean a double quantity of the syrup?

A. Yes, sir.

Q. And that is not an infrequent term in the fountain trade, is it?

A. Well, yes.

Q. You very frequently hear it called for?

A. Yes, sir.

Q. Now, sometimes a fountain boy, to make believe that he is serving double quantities of the mixture, will give this pump a couple of quick jerks, does he?

A. He does not work for me if he does.

Q. So far as you know ——

A. (Interrupting.) If he does, he does not work long.

Q. But if a double header is called for, why, he is supposed to put in double quantity and charge him at the double price?

A. Yes, sir.

Q. Those are his instructions?

A. Yes, sir.

Q. Did you say that this drink of Coca-Cola was unpalatable, that you don't care to take any of it yourself?

A. Well, I never tried to drink it but once; I can't drink anything that has carbonated water in it on account of kidney trouble, but I did try one drink of Coca-Cola; never touched it since.

Q. Did it impress you as being unpalatable, is that the way you term it?

A. No, I would say it was caused from the carbonated water; I don't drink anything with carbonated water in it.

Q. It is universally served in carbonated water, is it?

A. Yes, sir, but the reason I taboo carbonated water is because my physician has stated I should not drink it, and whenever I do drink carbonated water I have trouble with my kidneys.

Q. Then the carbonated water alone and independent of the syrup has a deletrious or injurious effect on your kidneys, in your case?

A. Yes, in my case.

Q. And for that reason you do not use this drink and have never tried it but once?

A. Never tried it but once.

Q. Did you find the drink palatable or otherwise when you tasted it?

A. Well, I couldn't say that I enjoyed the drink. I don't know that I would care to repeat the drink, but I attributed it as much to the carbonated water as I did to the syrup, to the syrup that was in the drink.

Q. Carbonated water tastes like any other water except it has some gas in it?

A. Causes gas on my stomach, is the way it effects my kidneys.

Q. You don't taste the gas when you are drinking the water, that is an after-effect?

A. Yes, I would say so; I never drank a glass of carbonated water without syrup to my knowledge.

Q. You have tasted Apollinaris Water, have you not?

A. I don't know that I have ever ——

Q. You have taken White Rock?

A. Yes, but I had reference to carbonated water served at the fountain without syrup.

Q. White Rock is a carbonated water?

A. Yes, sir.

Q. Are you acquainted with Mr. Pidgeon, who has been present during your examination?

A. Yes, sir.

Q. What business is he engaged in?

A. Why, I think he is the local manufacturer here of the bottle plant for — I mean the local manager of the bottle plant for the Coca-Cola Company. I don't know whether he owns the plant or what connection he has with it, but my impression is he manages it either for himself or for the Coca-Cola Company people.

Q. He at any rate arranged with you to come up this

morning and give your deposition?

A. Yes, sir.

RE-EXAMINATION,
BY MR. McALLISTER:

Q. Mr. Connable, to what extent do children call for Coca-Cola from your observation?

A. We have not a very large trade that depends on children; we have a few but they call for Coca-Cola very little in our store. They call principally for sherbets, ice cream and sundaes and ice cream sodas.

Q. Mr. Connable, when people call for "Dope," please state whether or not the understanding is that they are calling for it with the idea that that is the name of the drink, or that is simply a slang expression for Coca-Cola.

A. Well, we certainly understand that it is a slang expression for Coca-Cola.

Q. Now, "Coke" is an abbreviation, I believe you have stated, for cocaine, usually accepted, you say, as an abbreviation for cocaine?

A. Yes, sir, generally so, I think.

Q. Now, state whether or not it is not also an abbreviation for Coca-Cola.

A. Yes, I have heard Coca-Cola called for under the name of "Coke."

Q. How often, Mr. Connable, do you have calls for double-headers of Coca-Cola?

A. I am not in position to say accurately because I do not stay at the fountain myself. I stand around there quite a good deal and the service — once in a while but not very often.

Q. Well, you have those calls once in a while, but not very often?

A. That is right.

Mr. Candler: I will now read the deposition of F. W. WARD, the next witness, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION.
BY MR. McALLISTER:

Q. Where do you live, Mr. Ward?

A. Here in Memphis.

Q. What business are you in?

A. In the drug business.

Q. The wholesale or retail?

A. Retail.

Q. How long have you been in that business?

A. I have been in it for thirty-five years.

Q. Please state whether or not you in connection with

your retail drug business operate a soda fountain.

A. At the present time?

Q. Yes.

A. Yes, sir.

Q. How long have you operated a soda fountain?

A. Do you mean personally?

Q. How long have you been connected with a drug store, either personally or otherwise — I will first ask you whether you are familiar with the soda fountain business.

A. Yes, sir.

Q. Now, how long have you been so familiar with soda fountain business.

A. Since — about twelve years, possibly a little over that.

Q. Now, name some of the principal drinks dispensed at your soda fountain.

A. Liquid drinks?

Q. Yes.

A. Well, we dispense a good deal of limeade, lemon phosphate, egg drinks, Coca-Cola.

Q. How is the drink known as Coca-Cola that you have referred to ordinarily served to a customer?

A. Well, we put about an ounce in an eight-ounce glass, fill it up with carbonated water.

Q. An ounce of what, do you mean?

A. Coca-Cola.

Q. Of the Coca-Cola syrup?

A. Yes, sir.

Q. Where and by whom, Mr. Ward, is the syrup which is the basis of this drink manufactured?

A. It is manufactured by The Coca-Cola Company of Atlanta, Georgia.

Q. How long has the drink been on the market to your knowledge?

A. Well, I would roughly estimate about twenty years, going back from the time I left Mr. James S. Robinson here. I was with him for sixteen years, and he installed a fountain and kept it there for a couple of years, and I think it was about that time we had Moxie on the market, and he discontinued the fountain, and we had no fountain then, but my recollection of it is Coca-Cola was on the market then.

Q. How long have you been familiar with it, since that time?

A. Off and on; yes, sir.

Q. Please state, Mr. Ward, whether or not within your knowledge there has ever been any other drink, beverage or food product placed on the market under the name of

Coca-Cola other than that manufactured by the Coca-Cola Company, of Atlanta, Georgia.

A. None that I ever saw or knew of.

Q. What is your observation, Mr. Ward, as to the average number of drinks of Coca-Cola that the average man who drinks Coca-Cola at all will drink in the course of a day?

A. Do you mean as a general average of everybody who comes in the store and drinks Coca-Cola.

Q. As a general average of all who drink Coca-Cola, what does the average man drink, how many a day will he drink on an average?

A. The average man who drinks it will drink three, anyhow.

Q. Three?

A. Yes, sir.

Q. What effect, Mr. Ward, do weather conditions have on the demand for Coca-Cola?

A. I never noticed any.

Q. You say you never noticed any?

A. Oh, do you mean between the winter and summer seasons?

Q. Yes.

A. I suppose more drink in the summer than in the winter of all carbonated beverages; of course, more is drunk in the summer than in the winter.

Q. Well now, about to what extent would it fluctuate?

A. I should say that fifty per cent. would be a reasonable estimate.

Q. Fifty per cent. off in the winter time, you mean, Doctor?

A. Yes, sir, I should think so.

Q. To what extent, Mr. Ward, do children call for Coca-Cola?

A. I don't think I ever saw a child drink a glass of Coca-Cola.

Q. Please state whether or not from your observation or experience the drinking of Coca-Cola creates in the person who drinks it any craving or desire for increased consumption of Coca-Cola, or an increased number of glasses of Coca-Cola.

A. No, sir, I don't think it does.

Q. Do you drink it yourself?

A. Yes, sir.

Q. And about how frequently do you drink it?

A. Sometimes I drink three or four glasses a day, probably more, and then again probably I won't touch it for a week.

Q. Now, state whether or not there has ever been a case within your personal knowledge of anybody being injuriously affected by drinking Coca-Cola.

A. No, sir; there has not been.

Q. By what name is the drink ordered by people who call for it at the fountain?

A. Well now, that is a proposition — some people call it Coca-Cola, others come in and call for "Coke." There are a dozen slang phrases they use for it.

Q. State whether or not these slang phrases, such as "Coke," are recognized as the real name of the drink?

A. Well, it is now — that is, locally, I mean by that,— for instance, we have soda water boys around the counter and an intimate friend or friends of theirs will call for a flap-jack, anything turned, — you don't know what you mean by that, —well, it is meant by having the syrup in one glass and the water in the other and pouring it backward and forward.

Q. Then what does a person, I mean who is not addicted to slang, by what name will he indicate to the seller that he wishes this drink?

A. Call for Coca-Cola, I should say the better class of people call for Coca-Cola; because the word "Coke" is objectionable, and I always made it the rule in the store when we had waiting boys to come up and call for "Coke" to cut that right out, not allow the word to be used in the store.

CROSS EXAMINATION,
BY MR. MILLER:

Q. Now, they call for Coca-Cola under what names, taking the better class — what names do they use in calling for Coca-Cola?

A. The better class of people always say Coca-Cola. These boys will run into the store and say: "Give me a coke" — that is the most universally used slang phrase that I know of.

Q. Now, what other name is it called by?

A. Some of these intimate boys, their friends, they will say: "Flapjack turned,"—there are so many of those little things that I do not pay any attention to them because they don't have any significant meaning at all to the proprietor of a store.

Q. But "Flapjack turned" is a name that is applied to any other drink as well as Coca-Cola?

A. No, sir; simply an understanding between the boys.

Q. But that means any drink that is poured back and forth?

A. A flapjack, if they called for that, would have a

specific meaning, to call for a cold drink.

Q. But that would apply to one drink as well as to another?

A. I should imagine outside of that sphere — they would not call for a flapjack turned when they wanted a limeade, or a lemonade or a lemon phosphate ——

Q. I say, it might have application to any one of several drinks, whereas "Coke" when called for applies only to Coca-Cola?

A. Yes, sir, that is exactly right, when they call for "Coke" they mean Coca-Cola.

Q. And when they call for "Dope," they mean Coca-Cola?

A. I suppose they do.

Q. Now, aside from "Coke" and "Dope" and "Coca-Cola," what other names if any, are applied to Coca-Cola?

A. I couldn't tell you. It is not a part of my business to keep up with a lot of slang phrases.

Q. Now, what is your especial function in your place of business?

A. Do you mean occupation?

Q. Well, your particular department?

A. I am secretary and treasurer of the Hamner-Ballard Drug Company, and have general charge of the ethical drug department.

Q. Now, what do you mean by "Ethical drug department?"

A. I mean the legitimate drug business.

Q. Is the dispensing of soft drinks a part of the ethical drug department?

A. No, sir.

Q. Then you have only a limited supervision over the drug department?

A. No, sir.

Q. I mean, over the fountain and store?

A. The entire store outside of the clerical office work and buying.

Q. But in a general way your especial function is over the drug department?

A. No, not any more so than over the entire store.

Q. Then why do you say that you have especial supervision over the ethical drug department?

A. Because everything in the drug department is submitted to me; I am supposed to look after the drug business, but matters pertaining to other portions of that business come under my supervision also.

Q. But in a general way?

A. I have jurisdiction over the whole thing.

Q. But your supervision particularly over the drug department?

A. Yes, sir.

Q. And secondary or incidentally over the other dements?

A. Yes, sir.

Q. What connection have you had with this company for the last twelve years?

A. I have not been with it twelve years. We organized it about six years ago.

Q. How many gallons of Coca-Cola syrup do you buy, or did you buy last year?

A. I couldn't tell you exactly.

Q. Could you estimate it?

A. We have used as high as, I think, probably two thousand to twenty-five hundred gallons in one year.

Q. That means that there are 128 ounces to the gallon?

A. Yes, sir

Q. Do you dilute or mix that Coca-Cola syrup in any way before dispensing it at the fountain?

A. Not that I know of.

Q. How many serving boys do you have at the fountain?

A. We have two in the rear and two in the front, that makes four.

Q. What character of fountain do you use, what is known as the wall service or the counter service?

A. The counter service.

Q. Do you find any trouble with your pumps or levers in their working in dispensing Coca-Cola or other syrups?

A. No, sir.

Q. You do not have occasion to clean them because of the coagulation of this syrup on parts of the pump or fountain from which they are served?

A. No, sir.

Q. From your experience does the sugary substance in the Coca-Cola syrup clog the parts of the pump so as to emit a smaller portion as time progressed?

A. The crystallized sugar?

Q. Yes.

A. No, sir.

Q. Now, what is the method of service, how is it emitted the Coca-Cola, from the fountain or container into the glass?

A. By the pump, pressure of the pump.

Q. And that means to press with the thumb by the boy?

A. No, it is an upright pump.

Q. How does the boy operate it?

A. Simply presses the pump down, and as he lets it up the syrup flows — the vacuum is open, — made so by forcing or compressing the air out.

Q. And that is done with the thumb?

A. No, sir, couldn't use his thumb, not strong enough.

Q. What does he use?

A. The palm of the hand most of the time.

Q. Now, if a customer comes in and calls for a double-header, what is meant by that?

A. Never heard it called for.

Q. You have never heard that called for?

A. Yes, that is right; I never have heard it called for.

Q. Where is your place of business in the store?

A. 1315 South Main. Do you mean my place in the business, in the store?

Q. Yes.

A. Over the entire store.

Q. Then you supervise the entire store?

A. Yes, sir.

Q. How many employes in the store?

A. Well, if you mean those that are connected with the cafe department and all, we have in the neighborhood of about thirty.

Q. And you have general supervision over it all?

A. Yes, sir.

Q. You are a registered pharmacist?

A. Yes, sir.

Q. What is caffeine, is it a drug?

A. An alkaloid obtained from coffee.

Q. Is it a drug?

A. Yes, sir.

Q. Now, instead of being obtained from coffee, is the commercial caffeine obtained from tea?

A. You can get thein from tea but I think the principal source of our caffeine is from the coffee.

Q. Is there a difference between them, that is, a difference between the substance obtained from tea and that from coffee?

A. Alkaloids are a little different in chemical structure, but I think the physiological effects are about the same.

Q. Is commercial caffeine obtained from tea and from waste tea leaves?

A. I don't know. I don't think that is our authority for it.

Q. You don't think which?

A. That is our authority for it.

Q. Now, do you mean to testify that caffeine as it is

commercially bought and sold in the American market is obtained from coffee?

A. I mean to say this: There are a good many sources from which caffeine can be obtained that I possibly do not know.

Q. And you don't pretend to say what it comes from?

A. No, but I know it is an alkaloid that does exist in coffee.

Q. Do you know the constituents of the Coca-Cola syrup?

A. No, I do not.

Q. What effect has caffeine on the human system?

A. I think it is used as a heart stimulant to a certain extent; also as a diuretic.

Q. What is the effect of stimulating the heart on the human system?

A. It increases the flow or pressure of blood in the arteries.

Q. In other words, it makes it flow faster ——

A. (Interrupting.) Yes, sir —

Q. (Continuing.) — than usual, than it would usually flow?

A. Yes, sir.

Q. And don't you know that as a result of that the arterial structure is impaired when you increase the blood flow as against what nature designed?

A. Do you say I know — no, I do not.

Q. That is your opinion from a pharmaceutical standpoint?

A. Yes, that is my opinion from a pharmaceutical standpoint; from absolute knowledge I do not know.

Q. Now, you say that the average consumer of Coca-Cola probably takes three glasses per day, if I understand you correctly in your direct examination?

A. Yes, about that.

Q. What does the minimum cumsumer of Coca-Cola take?

A. Well, he could not take less than one glass.

Q. And what would the maximum consumer take?

A. I couldn't tell you, sir.

Q. How can you form a judgment as to that if you know the minimum but do not know the maximum?

A. Well, from the simple fact I see young men accustomed to coming in the store, probably coming in in the morning and again in the afternoon and again in the evening.

Q. And judging from the service at your counters, you say that the average consumer takes three glasses per day?

A. Yes, sir

Q. And the minimum consumer takes one?

A. Yes, sir. I do not see how he could take any less than one.

Q. How many pumps have you at either of your fountains?

A. I couldn't tell you now exactly that but I think operate probably eight pumps in the first section.

Q. And how many sections to the fountain?

A. Three, but we don't use all of those three sections.

Q. How many sections do you use?

A. I think possibly one full section there and probably three or four pumps in the other.

Q. Then you use about half of your pumps?

A. Yes, sir

Q. That is, at one fountain?

A. Yes, sir

Q. And how many do you use at the other fountain?

A. I think we have twelve pumps in our rear fountain and probably use them all.

Q. How many of those pumps at the front fountain are there from which Coca-Cola is dispensed?

A. Two, I think.

Q. And how many pumps at the rear fountain from which it is dispensed?

A. Well, I think two.

Q. And all of the other drinks are dispensed from the other fountains, I mean, from the remainder of the pumps?

A. Yes, sir

Q. Have you or your company stock in the Coca-Cola Company?

A. No, sir.

Q. Have you ever had?

A. No, sir.

Q. Has your company ever had any?

A. No, sir.

Q. Now, did the Mr. Robinson with whom you were associated have any?

A. No, sir; he did not.

Q. Or do you know?

A. No, sir, absolutely none.

Q. You are acquainted with Mr. Pidgeon who is present while this deposition is being given?

A. Yes, sir.

Q. What business or what position does he hold here in Memphis with reference to the Coca-Cola Company of Atlanta?

A. I never knew until a day or two ago; I understand

he is connected with the bottling of Coca-Cola here.

Q. He is the gentleman who arranged for you to come here and give your deposition this morning?

A. Yes, sir.

Q. Are you a licensed physician or a practicing physician?

A. No, sir.

Q. Well now, what quantity of this Coca-Cola syrup is emitted by one pressure of the pump?

A. These pumps are set, you know, they have a set screw on them, you can set them for any amount up to two or three ounces, but these pumps are set to draw one ounce of Coca-Cola.

Q. How many ounces do they draw sometimes, you don't know?

A. They could not exceed that much because we have to keep a lookout on them.

Q. But you don't know, of course, what the boys do?

A. No.

Q. When your back is turned?

A. No, could not, but these pumps are set for one ounce.

Q. What do you pay these serving boys?

A. The boys in the rear we pay forty dollars a month, ten dollars per week, and one man up front we pay eighty-five dollars a month, and I think another one we pay sixty dollars to.

Q. The lowest one you pay what?

A. Ten dollars per week.

Q. Ten dollars per week?

A. Yes, sir.

Q. Now, do you have day shifts and night shifts?

A. Well, yes, sir; they change.

Q. Do you drink Coca-Cola yourself?

A. Yes, I do.

Q. How long have you drank it?

A. I reckon I have drank it fifteen years.

Q. And is it palatable or not?

A. Yes, very palatable to me.

Q. Do you like it?

A. Yes, I like it; like carbonated beverages of any kind. I don't drink anything stronger than that but I like carbonated beverages of any kind.

Q. Any person who presents himself with the requisite price can get a glass of Coca-Cola?

A. Yes, sir.

Q. A child?

A. That would include children, but I don't think I

would permit a child to drink Coca-Cola in the store.

Q. And why not?

A. For the simple fact I would not like to have children hanging around the fountain with young men coming in there and hear a lot of talk in front of the fountain that I don't think is very good for children. We have two fountains in the store, one in the front is given up to the young men and nobody in the rear of our cafe where the ladies are served as a rule but ladies and ——

Q. (Interrupting.) Why would you not let a child drink Coca-Cola?

A. Why, I have just given you my reasons for that — you take some young men around fountains and around cigar counters use language not very acceptable to the ears of a child.

Q. You do not permit practices of that kind to be knowingly indulged in in your store?

A. Well, you can't help that — nothing discourteous is permitted, but the talk among young men you can't control, or I, either.

Q. But you said you would not allow a child to have a glass of Coca-Cola, now, why not?

A. No, sir; we have one in the rear that they may be served at.

Q. And they probably are served in the rear and you may not know it?

A. Well, I don't think they are because children do not call for it.

Q. But your statement is you would not permit a child to purchase it — now, why?

A. I do not know that I could state to you in any other way than I have, in the front part of our store, and in fact in the rear part of the store, children might be served back there, I don't know it.

Q. You would not permit it to be served in the front?

A. I would not permit young children — in fact, none of them stop up there for it, and we try to send the ladies and the children all to the rear where they belong.

Q. And as far as you know these young children are not served Coca-Cola in the front of the store?

A. No, sir.

Q. But, if I understand you, in the rear of the store it can be indiscriminately bought by children the same as other people?

A. I don't know that it could even then.

Q. Why not?

A. Well, it is just a habit I have got to serve children or of serving children; I don't think I ever saw a child

drink a glass of Coca-Cola in my house except my own child.

Q. Now, then, why is it you say you don't know that they could get it in the rear?

A. It may be from this fact, — coffee is stimulating, I don't think it advisable for children to drink coffee, and if Coca-Cola has got caffeine in it I should not think it would be advisable for children to drink a product that has caffeine in it.

Q. And you think that you would not serve a child Coca-Cola at the rear fountain?

A. I should advise against it; yes, sir.

Q. That is the substance that is popularly and generally known and dispensed as coca separate from coca — I ask you as a pharmacist.

A. You mean sold over the counter as a drug?

Q. Yes, coca.

A. It is generally the product of the bean —I think, I would not say positively.

Q. Is it not a product of the coca leaf?

A. Well, coca is proper coca, Erythroxylon Coca.

Q. That is the name by which it is called and written in the pharmacopoeia, is it not?

A. Yes, sir.

Q. As coca?

A. Yes, sir.

Q. By "Coca" as used in the pharmacopoeia and generally speaking, it has reference to the leaf?

A. Yes, sir; I think that is the heading of it.

Q. You think it has reference to the product or extract of the leaf?

A. I think coca itself would indicate the leaf or the herb.

Q. And that contains cocaine, does it not?

A. Yes, sir.

Q. Now then, what does kola mean as it is pharmaceutically and generally known and has been for years?

A. That comes from the cola nut.

Q. And its effect is what?

A. I think they get the stimulant effect of caffeine out of that.

Q. So that Coca-Cola, as it is styled by The Coca-Cola Company, — coca-cola — unites the two words as they are used in the pharmacopoeia and implies the active properties of the coca leaf and the cola nut?

A. No, I do not think it implies the active principles of it; I should think it implies, however, that the product was manufactured, however, from the cola nut and coca

leaf, but not the active principles of it.

Q. Why would it not mean the active principles, now?

A. Well now, would you simply say — take for instance, I will ask you this question — take morphine, would you imply that included all the alkaloids that are extracted from opium?

Q. I am not on the witness stand, but I am trying to get at your idea — I am simply asking you if coca as shown in the pharmacopoeia, as you say implies and gives one to understand that it is the product of the coca leaf or the coca leaf proper which contains cocaine?

A. Yes, sir.

Q. Then, by what process of reasoning do you arrive at the conclusion when you use the term "Coca," that the cocaine is to be eliminated —

A. (Interrupting.) I didn't say that at all; not my reference at all. When you make the product of the coca leaf you must take the tannic acid and everything else that is contained in the list — that is abstracted from the menstrum from which you —

Q. (Interrupting.) The chief active principle of or ingredient of the coca leaf is cocaine?

A. Yes, sir.

Q. And the chief active ingredient of the cola nut is caffeine?

A. Yes, sir.

Q. And they are both drugs?

A. Yes, sir.

Q. How, are these drugs, or either of them, speaking from your viewpoint as a pharmacist, recommended for food?

A. No, sir, not that I know of.

Q. But on the contrary, they are prescribed for physical ailments, are they not?

A. Yes, sir.

Q. And the normal healthy person does not require either?

A. Should not; no, sir.

Q. On the contrary, they would have a deleterious effect on the average normal person, would they?

A. I should think cocaine would most undoubtedly but as far as caffeine goes, I question it.

Q. If caffeine be prescribed for certain ailments, then how could you consistently say it could be favorably recommended to the normal healthy person?

A. I think we people get many things in medication that we use as foods.

Q. But you cannot say that caffeine serves any healthy

or beneficial purpose in case of a normal healthy person?

A. No, sir, I do not.

Q. Then if it does not serve a beneficial purpose, does it naturally result that it has a deleterious effect?

A. No, sir; I didn't say that.

Q. Then you think it is a neutral sort of a substance which does not have any beneficial effect at all?

A. No, sir.

Q. If it does not have any beneficial effect, what sort of an effect does it have?

Q. The point that I want to drive at, Mr. Miller, is in regard to caffeine — for instance, we live on, to a great extent, flour, farina tracter, which is flour; now, at the same time by a process, which I am not familiar with, they transfer a portion of that into gluten flour, which is one of the most helpful products I think that are given to diabetic patients. Well, now, therefore, we are transferring a food into a medicinal agent, or isn't that right? Or maybe I am wrong.

Q. That you say is given to diabetic patients.

A. Yes, sir.

Q. I understand you to say that caffeine was also prescribed for various ailments?

A. Yes, sir.

Q. My question presupposes that the person was in normal healthy condition?

A. Yes, sir.

Q. Now then, what function does caffeine serve that is beneficial?

A. I can't say that it serves anything that is beneficial.

Q. Then, if it does not serve a benificial purpose, does it naturally follow that its effect is deleterious?

A. From physiological or high standpoint of the medical profession, they may say it—I don't think that a glass of whiskey hurts some men, though it is not absolutely necessary, I don't think it injures them.

Q. Now, what you mean is that the effect of it is not observable?

A. Yes, sir, I don't think a small quantity of caffeine is any more deleterious than a cup of coffee.

Q. But, if continued, it might become deleterious?

A. Yes, sir, in the same way as coffee would; anybody who drinks coffee to excess would have some deleterious effect from it.

Q. That is true of any drug is it?

A. Yes, sir.

Q. You take a very infinitesimal quantity of cocaine, you can't observe that it has any deleterious effect, but you

accumulate and take it from day to day or from time to time, and it does have a deleterious effect?

A. Yes, sir.

Q. In other words, it has a deleterious tendency?

A. Caffeine you are refering to?

Q. Well, that or any other drugs.

A. Drugs, properly speaking, yes.

Q. And caffeine is a drug properly speaking?

A. Yes, sir; so put in the catagory.

Q. Now, you say that you probably would not serve children Coca-Cola. Between what ages do you refer when you speak of children?

A. Children four or five, or six or eight years old.

Q. And these fountain boys, what ages are they?

A. I think our front fountain man is probably 35 and the other one about 24 or 25.

Q. What are those you term as "fountain boys"?

A. That is what I had reference to.

Q. Do you mean to say that of all your servers there?

A. Yes, sir,we have only four; two white and two colored, and the two in the rear are grown men, I suppose twenty six or twenty seven years old.

Q. Where do your colored men serve?

A. In the rear.

Q. And that is where the ladies are served?

A. Yes, sir, a little cafe back there.

Q. And you have colored persons there who are dispensers of soft drinks?

A. Yes, sir.

RE EXAMINATION

BY MR. McALLISTER:

Q. Mr. Ward, I believe you stated that you were not a practicing physician?

A. No sir.

Q. Or a licensed physician?

A. No, sir.

Q. And your knowledge of the effect of drugs is gained purely from your knowledge of pharmacy?

A. Yes, sir.

Q. Mr. Ward, state whether or not rhubarb and ginger are classed as drugs.

A. Yes, sir.

Q. State whether or not the fact that an article is a drug necessarily implies that it is injurious.

A. Well, I should say simply that the word "drug" would mean that it pertained to something that was used for a cure, or some ailment or sickness.

Q. Now, state whether or not rhubarb and ginger are

injurious.

A. We would class rhubarb as a drug. When it comes to ginger, we would consider that more of a condiment, although I think it is put down as having medicinal properties, the use of it.

Q. What I am trying to get at is whether the use of the term "drug" necessarily implies that an article has a deleterious effect on the human system.

A. No, sir, not a deleterious effect by any means.

Q. State whether or not, Mr. Ward, eating a full or a heavy meal will increase the blood pressure.

A. Yes, sir.

Q. What is coca, Mr. Ward, C-o-c-a? (Spelling.)

A. My recollection is that the reference to "coca" in the dispensatory is only the description of the Erythroxylon Coca—the technical term of the shrub itself.

Q. The shrub itself?

A. Yes, sir.

Q. Is there or not a product known as coca? In other words, I understood you to mean or understood you to say just now that coca means coca plant. Is there or not any product known as coca?

A. Any product?

Q. Yes.

A. There are products made from the coca leaf.

Q. Do you not call them coca?

A. No, sir, we have distinguished them by their names, fluid extract, tincture, and I might say solid extract.

Q. Now, if a man came into your store, Mr. Ward, and asked for coca, what would you serve him, if anything?

A. I have been in business thirtyfive years, and have never sold a grain over the counter—

Q. (Interupting) You have no such product in the store?

A. Yes, sir, we have the leaf and have the fluid extract and all the products.

Q. State whether or not what you have in the store is known as coca or cocoa leaf?

A. Coca would be the techincal term for coca leaf.

Q. Are there other products derived from coca plant besides the leaves?

A. No, I think the medicinal properties reside naturally entirely in the leaves.

Q. And when you say coca you mean coca plant or coca leaves?

A. Yes, sir.

Q. Mr. Ward, when you say "Oak," what do you mean?

A. Well, I would think that it would apply to the oak

tree itself.

Q. Now, state whether or not the same thing applies to the word "coca," whether it applies to the plant itself.

A. To the plant itself.

Q. What is cola?

A. It is a plant or tree, I think it is more properly speaking, a tree.

Q. Is there or not any product on the market known by the simple name of "Cola" in the drug trade?

A. Not simply "Cola"—unless it applies to the tree from which the nut is taken.

Q. If a customer were to come into your store and ask for "Cola," would you know by that that he meant any particular single thing or that he wanted some particular part of the plant?

A. I would think that he wanted some product from the cola nut.

Q. Now, does the United States Pharmacopoeia, or not, recognize any article as a drug by the simple name of "Coca" or by the simple name of "Cola"?

A. The pharmacopoeia?

Q. Yes.

A. I don't know whether it is put down officially or not; I couldn't say.

Q. State whether or not, Mr. Ward, the Coca-Cola Company has ever within your knowledge advertised its product as "Dope" or as "Coke"?

A. No, sir, not that I know of.

Q. State whether or not the words "Dope" and "Coke" are recognized among the soda fountain trade and among the public generally as being the real name of the drink or as being a slang expression for it.

A. Why, a slang expression, of course.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Speaking from your experience as a registered pharmacist,—and I understand you are?

A. Yes, sir.

Q. Do you sell caffeine except on a physician's prescription?

A. I don't think I ever saw it sold, Mr. Miller, except in physicians' prescriptions.

Q. And speaking from the standpoint of a pharmacist, you would not say that it should be sold with a view to promoting public health except on a physician's prescription, would you?

A. If a man should call for caffeine I don't think I

would have any hesitancy in selling it.

Q. And before the law prohibited the sale of cocaine-before that law went into effect, you sold cocaine without a physicians prescrition?

A. I never sold a grain of cocaine in my life except on a physician's prescription, or for dental purposes.

Q. You were not in business prior to the time that the present law went into effect, the State law?

A. The Pure Food and Drug Act?

Q. No, I am speaking as to the pharmacy law of the State.

A. Was I in the business?

Q. Yes.

A. A good many years.

Q. You never had any calls for cocaine?

A. Well, I may have had calls for it.

Q. But you didn't sell it?

A. No, sir.

Q. You required a prescription of a physician?

A. Yes, sir.

Q. And you don't recall ever having sold caffeine except on the prescription of a physician?

A. No, sir.

Q. Unless you sell it in Coca-Cola?

A. If it is in Coca-Cola; I couldn't say it is in Coca-Cola.

RE-EXAMINATION

BY MR. McALLISTER:

Q. Mr. Ward, assuming that an ounce of Coca-Cola syrup contains approximately 1.24 grains of caffeine, would there be any difference between the physiological action of the caffeine in an ounce of Coca-Cola syrup and that in a cup of coffee, as ordinarily drank and served?

A. What was the proposition?

Q. One and twenty-four hundredths grains of caffeine to an ounce of Coca-Cola syrup?

A. Well, I understand that. You say, would there be any difference?

Q. Yes, would there be any difference between the physiological effect of that amount of caffeine in a glass of Coca-Cola—I mean the physiological action, and the physiological action of the quantity of caffeine, ordinarily I mean, contained in a cup of coffee, as ordinarily drank?

A. Well, I don't know the amount that is contained in a cup of coffee.

Q. I will put the question in the alternative, then. Assuming that caffeine exists in Coca-Cola syrup, would there be any difference, physiologically, between the action of

caffeine as it exists in Coca-Cola syrup and as it exists in coffee?

A. In the same proportion?

Q. Yes.

A. I should judge not.

Q. I beg your pardon, I didn't get your answer.

A. I should judge not.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. You do not mean to put caffeine and ginger in the same class as drugs?

A. Caffeine and ginger?

Q. Yes.

A. We class one of those as a condiment.

Q. And the other as a drug?

A. Yes, sir.

Mr. Candler: I will now read the deposition of

J. R. TAGUE,

the next witness called, of lawful age, first duly sworn, deposed as follows:

DIRECT EXAMINATION
BY MR. McALLISTER:

Q. Where do you live, Mr. Tague?

A. In Memphis, Tennessee.

Q. What business are you in?

A. The jobbing drug business.

Q. Over what territory does your house do business?

A. Well, we do business in Florida and Texas—a long ways from here.

Q. And the intervening states, you mean?

A. Yes, sir.

Q. How far west from Memphis does your house job?

A. Well, to the farther end of Oklahoma.

Q. Mr. Tague, state whether in connection with your drug jobbing business you handle any soda fountain syrups.

A. Yes, sir, we handle a great many different kinds.

Q. Name some of the principal ones, please.

A. The principal one is Coca-Cola.

Q. How long has your house jobbed Coca-Cola?

A. Oh, twenty years or more; that is the Mansfield Drug Company, that is, the Mansfield Drug Company I was with when I first came here twenty-five years ago, but twelve or thirteen years ago that company consolidated with the present concern, and the two concerns together have been jobbing Coca-Cola for twenty years.

Q. How long have you been familiar with the syrup known as Coca-Cola?

A. Well, sir, more than twenty years.

Q. How long has it been on the market, if you know?

A. I couldn't say.

Q. Mr. Tague, please state whether or not in your knowledge there has ever been any other syrup or any soft drink or beverage or food product placed on the market under the name of Coca-Cola other than that manufactured by the Coca-Cola Company of Atlanta, Georgia.

A. No, sir.

Q. Probably I should have prefaced that by asking you, where and by whom is this syrup known as Coca-Cola made?

A. By the Coca-Cola people, of Atlanta, Georgia, it has always been understood.

Q. From whom do you get the syrup that you job?

A. We get ours now from a warehouse in the city where they have it stored.

Q. Whose warehouse?

A. They bill it to us from Atlanta.

Q. To what extent, Mr. Tague, during your knowledge of the drink of Coca-Cola, has the drink been advertised?

A. Oh, enormously.

Q. State if you know, by whom this advertising is done.

A. I couldn't say by whom it is done, only that it is done by the Coca-Cola people; I don't know through what agency.

Q. Now, do you mean by that the manufacturers of the drink, or by the people that handle it?

A. The manufacturers of the drink.

Q. Now, what you have testified to in regard to the manner in which the drink is put on the market, the name under which it is put on the market, I will ask you if the same thing prevails over all the territory through which your house jobs the syrup.

A. Will you ask that again please?

Q. You have testified, Mr. Tague, that the drink is known as Coca-Cola; that it has been on the market to your knowledge for twenty years or more, and that there has never been any other drink or food, beverage of any kind, or food product on the Market under the name of Coca-Cola other than that manufactured by the Coca-Cola Company of Atlanta, Georgia.

A. Yes, sir.

Q. Now, is that or not true of all the territory over which your house does business?

A. Yes, sir.

Q. Are you or not familiar with the retail business in soda fountain drinks?

A. Fairly so; yes, sir. We handle a line of soda fountains, and of course handling that kind of stuff necessarily we know more or less about it.

Q. Now, how is the drink known as Coca-Cola ordinarily served to the customer at the fountain, Mr. Tague?

A. In seven-ounce glasses.

Q. I don't mean how much. I mean how is it fixed up for the customer.

A. Well, they have,—as a rule, I believe that they do not sell any more in one glass than in another; the glass has a small band or mark around which indicates the amount of Coca-Cola to be turned into the glass before the carbonated water is drawn, and that is in proportion of one to six, making a seven ounceglass.

Q. One to six what?

A. One ounce of Coca-Cola syrup to six ounces of carbonated water.

Q. Are you able to say, Mr. Tague, to what extent children are in the habit of drinking Coca-Cola?

A. No, sir.

Q. Mr. Tague, state whether or not your sales of Coca-Cola syrup vary with the seasons of the year.

A. Oh, yes, we sell more in warm weather, of course.

Q. To what extent do they fluctuate?

A. Well, I presume we will sell—oh, sixty per cent, of all our sales during the months of, say June, July and August..

Q. Do you drink Coca-Cola, Mr. Tague?

A. Not in cool weather; I always do in hot weather.

Q. I will ask you to state what your observation has been as to whether or not—I mean, what your experience or observation has been as to whether or not the drink Coca-Cola creates on the part of the person who drinks it a craving or desire for increased quantities of Coca-Cola or increased number of glasses of the drink.

A. Well, I could only say from my own experience; I do not find that anything of that kind prevails at all with me.

Q. Have you observed anything of the sort with others?

A. No, sir.

Q. I will then ask you as to your own experience, as to what your own experience has been in that respect.

A. My experience is that it produces nothing of the kind; I drink it because it seems satisfying, seems to strike the right spot, there seems to be more body to it than to ordinary syrups.

Q. Mr. Tague, state whether or not there has ever been to your knowledge, within your personal knowledge, I mean, anybody injuriously effected by drinking Coca-Cola?

A. No, sir.

CROSS-EXAMINATION
BY MR. MILLER:

Q. You mean what by "body" to the drink, Mr. Tague? What is body?

A. Sir.

Q. What is the effect?

A. Oh, I don't know that there is any particular effect to it at all, only in the summer time I say that I want some cooling drink, and it seems to strike the spot better. The other syrups, there is not very much to, don't you know, the syrups they draw from the fountain, as a rule vanilla syrup, strawberry syrup and pineapple syrup and that kind of stuff,—you take acid phosphate, there is not much to it; Coca-Cola has a very nice taste and leaves a very pleasant farewell; it produces an effect that perhaps these other drinks I mentioned do not.

Q. What I want to know is that effect that it produces that the other drinks do not produce?

A. Well, I couldn't say what effect it has only I like it, very cooling and lasting in effect.

Q. Is it any more cooling than the ordinary ice water?

A. Yes, sir, it feels so to me.

Q. Colder than ice water?

A. It feels so.

Q. Now, don't you know as a matter of fact if it is liquid at all it would not be any colder than ice water?

A. I presume that is the case, sir.

Q. But it has an effect different from any other soft drinks that you can't describe?

A. Yes, sir.

Q. And that effect is a sort of stimulating effect is it?

A. I presume so, yes, or at least I think so, I have always understood it was a stimulating drink.

Q. And that has been your experience with it?

A. Yes, sir.

Q. In other words, if you were tired and took that drink, shortly after taking it the tired feeling would disappear, apparently?

A. Yes, and more or less always.

Q. You feel like a comparatively new man?

A. Well, feel relieved.

Q. Of that tired feeling?

A. Yes, sir.

Q. You feel invigorated to a certain extent?

A. Yes, sir, to a certain extent.

Q. Have you had occasion to observe the extent to which it is consumed at the fountains here in Memphis?

A. No, sir, only through sales of it to the local people.

Q. Now, you say that you sell much more of it than you do of the other syrups?

A. Yes, sir.

Q. How many drinks have you been acccutomed to taking, you and your friends, during the day, so far as you have observed?

A. I may have drunk three glasses in a day but as a rule one or two glasses, not more than that.

Q. You are a pharmacist?

A. No, sir; I have been in the retail drug business for six or seven years; I never have studied pharmacy, never graduated in any school.

Q. You know as a matter of fact that caffeine is a drug do you?

A. Yes, sir.

Q. And you know that it has a stimulating effect?

A. Yes, sir.

Q. And you know that ordinarily it is not dispensed except under a prescription, I mean, under the direction of or on the prescription of a physician?

A. Well, I get it in a cup of coffee each day, I know, or in a cup of tea.

Q. I am speaking of commercial caffeine.

A. Well, I suppose commercial caffeine is in coffee and tea.

Q. Now, do you as a druggist or as the representative of your firm state that that caffeine that is found in coffee and tea is what is known as and bought and sold on the market as commercial caffeine?

A. I have always understood that it was.

Q. Now, don't you know that the commercial caffeine comes in a drum and that when you buy that you dont get coffee at all?

A. I mean to say that caffeine was the principal of coffee.

Q. I am speaking of the commercial caffeine as bought and sold, isn't that wholly seperate and apart from the other substances that go to make up tea and coffee.

A. Isn't it what?

Q. Isn't commercial caffeine only one of the ingredients that is found in tea and coffee?

A. Yes, sir.

Q. And when you buy and sell caffeine you do not ex-

pect to get tea or coffee, either, do you?

A. No, sir.

Q. Now then, I will ask you when you were in the retail drug business, or now in the wholesale drug business if caffeine is dispensed by the retailer promiscuously or indiscriminately to whoever wants it, or whether or not it is usually dispensed under the direction and on the prescription of a physician.

A. Yes, sir, I should think that was right.

Q. That is to say, it is prescribed by physicians and dispensed under the supervision of or by the direction of physicians?

A. Yes, sir.

Q. Your firm, or corporation, I believe it is, has it had any trouble with the Bureau at Washington under the Food and Drug Act? Has it been cited for a violation of that in any way?

A. Yes, sir.

Q. In what connection?

A. In misbranding of cartons.

Q. What is that, what is the nature of it?

A. Well, they called our attention to a number of different preperations that they claimed the printing matter was deceptive in or on.

Q. What is this carton you speak of, what character of substance is that?

A. It is pasteboard, the container the bottle is put in, to make it saleable and shapely.

Q. How long have you been doing business with the Coca-Cola Company of Atlanta, Georgia?

A. The two firms I have been with for twenty years.

Q. Was it or not a part of the method or scheme of advertising of the Coca-Cola Company at any pediod of its history to either give away or sell stock in the Coca-Cola Company of Atlanta in small shares?

A. Not that I know of.

Q. You don't know of any being held or ever having been held in Memphis?

A. No sir.

Q. Now, in this matter of advertising that you spoke of, does the dealer, retailer of jobber bear any portion of the expense of that or is that borne by the Coca-Cola Company in Atlanta, Georgia, exclusively?

A. It must be borne by them entirely; we have nothing to do with that.

Q. But you don't know how it is with the retail trade?

A. No, sir.

Q. Coca spelled (spelling) c-o-c-a, is a drug is it?

A. Yes, sir, well yes sir—is part of the name of coca leaves.

Q. And when "coca" is spoken of you understand that means coca leaf of which or in which cocaine is the chief or active ingredient, don't you?

A. No, sir, you wouldn't conclude that at all.

Q. What would you understand the word "coca" to mean?

A. Well, if it was spelled out like that I would understand it was coca erythroxlyn, which is coca leaf, but if anyone was to ask for "coca" I would suppose they meant "cocoa" which is made from chocolate.

Q. That is the ordinary breakfast drink?

A. Yes, we sell a great deal of it.

Q. And that is spelled (spelling) c-o-c-o-a is it?

A. Yes sir, that is spelled c-o-c-o-a but a great many people don't know how cocoa is spelled or cola—pardon me, but as an illustration of that, not more than two weeks ago one of our pricers, a lady, said "I have just lost a nickel" and I said "how is that" and she said "one of the gentlemen in the office bet me a nickel I could not spell "Coca or Cola", and she said I spelled it coca, and she then asked a young man who sat by the side of me if he knew how to spell Coca or Cola, and he said "yes, coca", and she said "you would have lost just as I did", and she later recovered the nickel through some other bet along the same line with somebody else she had bet with in the office, so the three of them spelled the word coca.

Q. They evidently had not studied the advertisements of Coca-Cola very much?

A. No, sir.

Q. And if they had they would have known how the name was spelled better than that?

A. Yes, sir, I should think so. To think of these people who are pricing Coca-Cola all day long it is suprising they did not know how it was spelled but that is the case.

Q. So it is the breakfast cocoa, spelled (spelling) c-o-c-o-a is a harmless beverage that is taken for family consumption?

A. It is not always spelled (spelling) c-o-c-o-a; the people that put it up call it coco—

Q. At any rate it is not spelled "coca"?

A. No sir.

Q. But the word "coca" is a drug and a drug term and the chief property or constituent of it is cocaine?

A. Yes, sir.

Q. And that is what is known as a drug to the trade?

A. Yes, sir.

Q. And is so known to the drug trade?

A. Yes, sir.

Q. Now then, you know also what the substance cola is?

A. Why I am not very familiar with it, no sir.

Q. As a dealer in drugs don't you know that there is such a substance as cola?

A. Yes, but we don't handle it, and never did.

Q. You know though that there is such a substance?

A. Yes, sir.

Q. Have you had occasion enough to be around soda fountains to know that coca-cola as it is dispensed in this section is very frequently termed "dope"?

A. I have heard it called "dope", yes, sir.

Q. And sometimes heard it called "coke"?

A. Yes, sir.

Q. And you have also heard cocaine termed "coke", have you?

A. Yes, sir.

Q. And other strong drugs of that character are sometimes called "dope", are they?

A. Yes, sir.

Q. How long have you known of "coca", that is (spelling) c-o-c-o-a and cola also, those two drugs?

A. Well, I should say for fifteen years, the former; and perhaps ten or twelve years the latter.

Q. That is about as long as you have been very familiar with the drug business?

A. No, sir, I have been fairly familiar with the drug business for much longer time than that.

Q. Didn't you know during your previous connection with the drug business or drug trade what cocaine came from?

A. Cocaine was not used to any extent no longer than 15 or 16 years ago I believe a comparatively new thing then.

Q. And it is only since cocaine commenced being bought and sold commercially that you have been acquainted with it, and that has been only about 15 years?

A. Yes, sir.

The Court: All the question about cocaine in these depositions and its effects, are excluded.

Mr. Sizer: Now, we have a similar series of depositions taken in Nashville and Memphis. After getting through Memphis, we made a certain stipulation that that testimony would be typical of testimony, we had taken in Chicago, St. Louis, Louisville, New Orleans, Birmingham——

Mr. Miller: Not New Orleans.

Mr. Sizer: No, not New Orleans. And I am satisfied that the other side, we will just consider the Knoxville deposition typical of the others taken in Nashville and Memphis and not read them.

Mr. Miller: We will consider them all as read. The only thing about that is this: it may result in the rebuttal testimony being reached today, and we may not be prepared to go into it this evening.

The Court: It is agreed that the depositions are of the same general character as those that have been read from Knoxville, and either side may read any part of them to show any especial difference. Gentlemen of the jury, instead of reading those depositions from Nashville and Memphis, it is admitted that they are of the same general character.

Mr. Candler: I will now read the stipulation.

(Stipulation No. 1 was read as follows):

"Memphis, Tennessee,
November 11, 1910.

On this day stipulation of counsel has been entered into with respect to the taking of depositions of certain persons residing in various cities of the United States, including Chicago, Illinois, the effect whereof is to afford to the claimant, the Coca-Cola Company, the benefit of the testimony of certain witnesses whose residences are set forth in said stipulation without actually taking the depositions of such witnesses. Now, said stipulation is to be in full force and effect unconditionally, as to all the witnesses named therein, except those resident in Chicago, Illinois, and is to be and remain in full force and effect as to those in Chicago also, but, upon condition that in case the Government should take depositions by consent of parties in this controversy in Chicago, Illinois, prior to the trial, that it may have the opportunity of cross-examining any of the witnesses above named for the Claimant on that occasion whose attendance can be procured, and such cross-examination may be read on the trial in lieu of the cross-examination stipulated for in the agreement aforesaid.

Signed at Memphis, Tennessee, on this 11th day of November, 1910.

J. B. COX,
Attorney for the United States.
PRITCHARD & SIZER,
CANDLER, THOMSON & HIRSCH,
Attorney for Claimant, Coca-Cola Co.
W. B. MILLER, Special Counsel.
Filed March 22-11.
R. M. WATKINS, D. C."

The Court: Gentlemen of the jury, you have heard the stipulation, and that means that those witnesses would testify substantially as the others you have heard read.

Mr. Candler: I will read this other stipulation.

(Stipulation No. 2 was read as follows:

"In this controversy, the Claimant, Coca-Cola Company, has taken the depositions of seven Retail Druggists, one Wholesale Dealer or Jobber, and two Consumers of Coca-Cola, residing in Knoxville, Nashville, and Memphis, Tennessee, all told, and has proposed to take the depositions of witnesses whose names, places of residence and business are as follows, to-wit:

RETAIL DRUGGISTS.

J. Schrodt, Dallas, Texas.
Russell V. Rogers, Dallas, Texas.
J. T. Berry, Dallas, Texas.
J. W. Covey, Fort Worth, Texas.
W. L. Terrell, Fort Worth, Texas.
W. M. Federmann, Kansas City, Mo.
Hugo Brecklein, Kansas City, Mo.
C. E. Zinn, Kansas City, Mo.
S. B. Sidmore, Chicago, Illinois.
Albert A. Wert, Chicago, Illinois.
J. S. Peacock, Philadelphia, Pa.
N. Pennypacker, Philadelphia, Pa.
Roy Childrey, Richmond, Virginia.
W. B. Elam, Richmond, Virginia.

WHOLESALE DRUGGISTS OR JOBBERS.

L. M. Moyer, Dallas, Texas.
J. W. Shugart, Fort Worth, Texas.
H. W. Williams, Jr., Fort Worth, Texas.
J. B. Love, Kansas City, Mo.
R. J. McQueen, Kansas City, Mo.
O. P. Meyer, St. Louis, Mo.
S. P. Delano, Chicago, Illinois.
C. F. Shoemaker, Philadelphia, Pa.
E. D. Taylor, Richmond, Virginia.

CONSUMERS OF COCA-COLA.

Geo. E. Williams, Dallas, Texas.
E. E. Marvin, Dallas, Texas.
V. Browne, Fort Worth, Texas.
E. H. Lightner, Kansas City, Mo.
P. B. Deane, St. Louis, Missouri.
Ezra S. Webster, Chicago, Illinois.
E. D. Southgate, Chicago, Illinois.

E. I. Santee, Philadelphia, Pa.
Hansford Wilkinson, Philadelphia, Pa.

For the purpose of saving expenses and time it is now stipulated and agreed between the parties to this controversy, namely, the Government on the one side and the Claimant on the other, that the proposed witnesses who are Retail Druggists, as set forth above, would testify in the order named, both on original and cross-examination, substantially as the seven retail druggists whose depositions have been previously taken, which is to say that the first of the proposed witnesses who is a retail druggist would testify as the first retail druggist who testified herein, and the second one likewise unto the second whose deposition was taken herein, and so on until seven of the proposed witnesses have been exhausted, after which the next seven of the proposed witnesses would in like manner testify as shown above and that the fifteenth witness would testify substantially like the first witness whose deposition was taken herein; and that as to the nine wholesale dealers or jobbers whose depositions are proposed to be taken, they would testify in substance on original and cross-examination as the one whose deposition has already been taken; and that the eight persons who are consumers of Coca-Cola, and whose depositions are proposed to be taken by claimant would testify four of them in substance as one of the two consumers of Coca-Cola whose deposition has heretofore been taken; and the other four as to the other whose deposition has heretofore been taken; and this stipulation may be read on the trial with the same force and effect as if such depositions had been actually taken, subscribed and sworn to.

The Claimant, Coca-Cola Company, also contemplated taking the depositions of certain persons whose names, places of residence and occupation are as follows:

SODA FOUNTAIN DISPENSERS.

J. B. Compton, Dallas, Texas.
T. M. Williams, Kansas City, Mo.
W. R. Arrant, St. Louis, Mo.
C. S. Coleman, St. Louis, Mo.
J. P. Samson, Chicago, Illinois.
Geo. W. Cummins, Richmond, Virginia.

And in lieu of taking their depositions, in so much as Claimant proposes to introduce on the trial the testimony of certain persons engaged in like business, it is now agreed that the depositions of the six persons last above named, both on examination in chief and on cross-examination, would be substantially the same as that of the witness or

witnesses of a like occupation whose evidence will be taken on the trial of this case; and this stipulation may be read on the trial as having the same force and effect as if such depositions had been actually taken, subscribed and sworn to.

This stipulation reserves to both parties the right to except to any incompetent and irrelevant testimony.

Signed at Memphis, Tennessee, on this November 11th, 1910.

J. B. COX,
Attorney for the United States.
PRITCHARD & SIZER,
CANDLER, THOMSON & HIRSCH,
Attorney for Claimant, Coca-Cola Company.
W. B. MILLER, Special Counsel.
Filed March 22, 11.
R. M. WATKINS, D. C."

Mr. Candler: They didn't do that so that there is really no cross-examination.

(Whereupon at 12 o'clock noon, a recess was taken until 12:20 o'clock P. M.)

AFTER RECESS:

The Court met pursuant to adjournment.

E. C. BROWN,
recalled to the stand, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. You heard Mr. Walker's testimony this morning?

A. Yes, sir.

Q. Can you tell us why it is that Coca-Cola tastes different at different places?

A. I think because the different soda, the carbonated water is under different pressure. Some places it is run out to 100 to 110 pounds. At our place, it run under a pressure of 180 pounds. In a good many places, particularly up in New York where I was the other day, they drew a glass, say pour it out this way ——

Mr. Miller: Anything that occurred the other day is not competent. The matter about which he is testifying may be relevant otherwise, but I submit it is not competent to inquire about conditions the other day in New York. This controversy arose over two years ago.

The Court: Limit your answer to conditions that within your own knowledge existed in 1909.

The Witness: Carbonic acid gas water is run out at

some places under 110 pound pressure and at other places at 180. That higher pressure makes the carbonated water snap; it makes it more palatable and it foams more. A great many dispensers will pour it out from glass to glass and that eliminates the carbonic acid gas and makes it flat, and where it is stirred with a spoon, it gives it a more effervescent condition and makes it more palatable.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. Do you live in Atlanta?
A. Yes, sir.
Q. Do you know Asa G. Candler, the President of the Coca-Cola Company?
A. Yes, sir.
Q. He is living?
A. The last time I knew anything of him he was.
Q. He is not here?
A. No, sir.
Q. You don't see him in attendance on the trial?
A. No, sir.
Mr. Sizer: I don't see that that is relevant.
The Court: It may be relevant, I cannot tell.

BY MR. MILLER:

Q. Is he in attendance on the trial?
A. The old gentleman?
Q. The President of the Company.
A. I don't see him.
(Witness excused.)

FRED SHEPHERD,
the next witness called on behalf of the claimant and intervenor, the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Did you last summer select a number of subjects to be examined by Doctor Brown, Doctor Wert and Doctor Holtzclaw in this Coca-Cola matter?
A. Yes, sir.
Q. Do you remember or not how many of those 100 people you selected?
A. I think all there were, about 110, and I suppose of that number I got about 75 or 80 of them. The rest of them were gentlemen that Mr. Thomas had sent up there.
Q. Now, in making the selection of those subjects, what

instructions were given you and what was the rule you followed?

Mr. Miller: I object to his instructions. He can state what he did, but I object to any of his instructions.

The Court: The exception is overruled.

The Witness: I tried to get men in all walks of life who drank Coca-Cola. I would not take anybody unless they told me they drank three or four Coca-Colas a day. I got men from the saloon bum up to the best business men in Chattanooga who took that examination.

Q. Did you or not try to find those who took the largest amount of Coca-Cola?

A. Yes, sir; that was my idea in going after the men.

Q. Are you a brother to T. P. Shepherd?

A. Yes, sir.

Q. Were you with him at the time the bottling works was being conducted in Texas?

A. Yes, sir.

Q. Did you drink a good deal of Coca-Cola during that time?

A. I drank from twelve to fifteen bottles a day. It was right in the plant and easily gotten to.

Q. What effect did it have on you?

A. Absolutely no effect on me that I could ever detect.

Q. Do you drink Coca-Cola now?

A. I drink I suppose five glasses a day on an average?

Q. Does it have any effect on you now?

A. None that I can see.

Q. Do you drink the same amount?

A. Oh, I might vary one or two, I don't keep track of it. When I get thirsty, I go in and get one.

Q. Do you drink as much in the winter as in the summer?

A. Yes, in fact more.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What year was it you were in Texas?

A. I don't really know.

Q. About how many years ago?

A. It must have been five or six or seven — about six.

Q. These men that you got, from the saloon bum up, to go and be examined, you were paid fifty cents a head and you gave them twenty-five cents a head of the fifty?

A. Yes, sir.

Q. That is the way you did it for the three Doctors who conducted the examination?

A. I was not working for the Doctors.

Q. They were the three doctors you sent the men up to?
A. Yes, sir.
Q. Well, who was it that paid you the fifty cents?
A. I was employed by Mr. Thomas.
Q. He is connected with the Coca-Cola Company?
A. Yes, sir.

BY MR. SIZER:

Q. Were you out in Texas one or two years?
A. I was there part of two years.
(Witness excused.)

E. E. KERR,

the next witness called on behalf of the claimant and intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. You are a practicing physician in Chattanooga?
A. Yes, sir.
Q. Of how many years standing?
A. Since November, 1887.
Q. Do you know the beverage Coca-Cola, Doctor?
A. Yes, sir.
Q. Have you had occasion among your patients and clients to meet people who drank it in considerable quantities?
A. Yes, sir.
Q. Have you ever known, Doctor, of any case of sickness or disease or ailment of any kind resulting from the use of Coca-Cola?
A. No, sir.
Q. Do you know or have you observed whether children drink it usually?
A. As a rule, not. In fact, I can't recall a child taking it from the fountain.
Q. Have you taken it frequently.
A. Yes, sir.
Q. How much of it do you drink?
A. Not much. Sometimes I will drink two or three bottles a day and maybe it will be a week or two when I don't drink any. It is owing to how often I want a carbonated water drink, and I like the bitter taste of the Coca-Cola.
Q. Does it have any effect on you?
A. No, sir.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. What is the physiological action of caffeine now, Doctor?

A. Stimulant.

Q. Of the heart, brain and nerves and muscles, is it?

A. We use it, Mr. Miller, that is the use of it is when I prescribe it as a stimulant to the respiratory center.

Q. By that you mean what?

A. The respiratory center.

Q. Make your answer a little more definite in that than respiratory center.

A. That is as definite as I can make it, unless I want to locate the beginning of the vagus nerve that furnished the lungs.

Q. What else do you prescribe it for?

A. Only as a stimulant.

(Witness excused.)

THEODORE LASSLEY,

the next witness called on behalf of the claimant and intervenor, The Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Mr. Lassley, do you live in Chattanooga?

A. Yes, sir.

Q. What is your occupation?

A. Manufacturer.

Q. Of what particular line of manufacture?

A. Vitrified brick, particularly.

Q. And what is your connection with the company?

A. I am vice-president.

Q. Of what company?

A. The Southern Clay Manufacturing Company.

Q. Mr. Lassley, were you examined last summer by Doctors Brown, Wert and Holtzclaw in connection with this Coca-Cola matter?

A. I was.

Q. Were you asked a number of questions by them in the course of that examination?

A. Yes, sir.

Q. Did you make a truthful answer to those questions?

A. Yes, sir; I did.

Q. Do you drink Coca-Cola, Mr. Lassley?

A. I do.

Q. To what extent?

A. Well, irregularly.

Q. What is approximately the largest amount you drink in the course of a day.

A. About four glasses.

Q. Do you drink that on some days and then there are some days you don't drink any?

A. Yes, sir.

Q. And what are the effects of Coca-Cola on you?

A. Well, it has somewhat of a stimulating effect.

Q. Have you observed any other effects aside from stimulation?

A. No.

Q. Do you drink more in the hot weather than you do in the cold weather?

A. Sometimes I don't drink any to speak of in cold weather.

Q. What is the general condition of your health?

A. Very good.

Q. How long have you taken Coca-Cola?

A. Six or seven years I should say.

Q. Has it any tendency to create a habit or craving with you?

A. Not with me.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You do not profess to have any knowledge of medicine, do you, Mr. Lassley?

A. No, sir.

(Witness excused.)

McKINLEY HAYES,
the next witness called on behalf of the Coca-Cola Company, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your age?

A. 20.

Q. Were you examined last summer by Doctors Brown, Wert and Holtzclaw?

A. Yes, sir.

Q. Did they ask you a good many questions about certain things?

A. Yes, sir.

Q. Did you tell them the truth about it?

A. Yes, sir.

Q. Do you drink Coca-Cola?

A. Yes, sir.
Q. How much?
A. About anywhere from three to six a day.
Q. Three to six glasses a day?
A. Yes, sir.
Q. How long have you been drinking it?
A. About some five or six years.
Q. What if any effect does it have on you?
A. Well, it seems to be refreshing, that is all I can see.
Q. Is that about the only effect it has on you?
A. Yes, sir.
Q. Do you drink more some days than others?
A. Yes, sir.
Q. Do you drink more in the summer than in the winter?
A. Yes, sir.
Mr. Miller: I object to the leading questions.
The Court: Yes, the exception is sustained and the last two answers are excluded.

BY MR. SIZER:

Q. Do you drink the same all seasons of the year, and if not, in what seasons do you drink the most?
A. I have never paid any attention, but I think I drink more in the summer time than any other time of the year.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. It seems to refresh you, you say — that means it stimulates you?
A. Yes, sir.
Q. And braces you up?
A. Yes, sir.
Q. That is right?
A. Yes, sir.
(Witness excused.)

Mr. Sizer: We have a large number of other witnesses along that same line. We do not care to go into it any more extensively than your Honor thinks proper.
Mr. Miller: Well, I have not offered any objections to it, if your Honor please, I have not offered any objection, if your Honor please.
The Court: If you want to, you may put on two or three more. I will limit that to three more.

J. E. NEVILLE,

the next witness called on behalf of the Coca-Cola Com-

pany, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. How old are you?
A. Born in 1829.
Q. What is your business?
A. Loafing.
Q. Have you been working, Mr. Neville, or loafing all your life?
A. Yes, sir; I have worked.
Q. What work have you done?
A. All work that has been done by the human family, all mankind.
Q. Mr. Neville, do you drink tea or coffee or Coca-Cola?
A. Yes, sir.
Q. Do you drink all of them?
A. Yes, sir.
Q. About how much do you drink a day?
A. Well, I usually drink from one to two cups of coffee for breakfast and for dinner and sometimes for supper.
Q. How much tea do you drink?
A. About the same when I drink tea.
Q. How much Coca-Cola do you drink?
A. When I drink that, I drink a glass usually and sometimes — not one right after the other, I am not a glutton on anything. I drink one or two or three a day sometimes, and sometimes I don't drink it for some time, and then I drink it when I feel like it.
Q. What effect, if any, does it have on you?
A. I don't know that it has any effect, only that I like the taste of it.
Q. Does it have any tendency to create a habit or craving with you?
A. No, sir, none at all.
Q. Did you say how long you had been drinking it?
A. About 20 years.
Mr. Sizer: That is all.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You say coffee has no effect on you?
A. No, sir.
Q. And tea has none?
A. No, sir.
Q. And Coca-Cola none?
A. No, sir.

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Q. You never tried any wire nails or anything like that?
A. No, sir.
Q. Well, stand aside.
A. I never tried anything else.

(Witness excused.)

ZACK H. TAYLOR,
the next witness called on behalf of the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your age?
A. Twenty-three.
Q. Were you examined by Doctors Brown, Wert and Holtzclaw last summer?
A. Yes, sir.
Q. Did you answer the questions they asked you truly?
A. Yes, sir.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How much?
A. Average about two a day.
Q. How long have you been drinking it?
A. Five or six years.
Q. Do you sometimes drink more than that?
A. Sometimes as many as four or five.
Q. Do you sometimes drink less than two?
A. Hardly ever less than two.
Q. You have been keeping that up for four or five years?
A. Yes, sir.
Q. What effect does it have on you?
A. None that I can notice.
Q. As far as you know, is your health good?
A. Yes, sir.
(Witness excused.)

M. E. TURNER,
the next witness called on behalf of the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your occupation?
A. Dentist.
Q. What is your age?

A. Thirty-six.
Q. Do you drink Coca-Cola?
A. Yes, sir.
Q. How much?
A. I drink from one to two a day.
Q. Do you ever drink more than two?
A. I have at times.
Q. What is the most you recall having drunk?
A. About four.
Q. How long have you been drinking it?
A. My first knowledge of Coca-Cola was probably 20 years ago.
Q. Have you been drinking it more or less since that time?
A. There was probably an intermission up to about 16 years ago when I went to Atlanta.
Q. Do you drink it at all seasons of the year?
A. I naturally drink a little more in summer than in winter.
Q. What effect does it have on you?
A. None that I can notice.
Q. What is the condition of your health?
A. Very good.
Mr. Sizer: I believe that is our limit now.
(Witness excused.)

CHESS LAGONARSINO,

the next witness called on behalf of the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your occupation, Mr. ——
A. Soda dispenser.
Q. Whereabouts?
A. 21 Peachtree, Atlanta.
Q. How long have you been in that business?
A. 12 years.
Q. Do you conduct a soda water establishment there?
A. Yes, sir.
Q. At which you serve drinks?
A. Yes, sir.
Q. What kind?
A. All soda fountain drinks, Coca-Cola, strawberry, anything.
Q. Is there any difference in the quality and flavor of soda fountain drinks, according to the way in which it is mixed?

A. Yes, sir.

Q. Can you explain how that is?

A. What drinks?

Q. Take Coca-Cola for instance?

A. Sometimes you put too much syrup in it and it is too sweet, sickening. Sometimes the carbonated water is not right and it will make you sick — it is flat.

Q. Then, is there a difference in the manner in which the carbonated water and syrup are mixed?

A. Yes, sir; some dispensers do not put enough water and they have too much foam, some people don't like it, it is sloppy.

Q. Is there a difference in the flavor as to whether you stir it with a spoon or pour it from glass to glass?

A. Is there a difference in the flavor?

Q. In the character of drink?

A. Yes, sir.

Q. What is that due to?

A. Gases.

Q. Do you strain the syrup you use at your fountain?

A. Yes, sir; everything.

Q. And you strain the Coca-Cola syrup among other things?

A. Yes, sir.

Q. Have you had occasion to observe what you get out of Coca-Cola syrup when you strain it?

A. Yes, sir.

Q. How much Coca-Cola have you used?

A. I have been with that company about twelve years and I have strained and had strained about fifteen to twenty thousand gallons.

Q. What kind of substances have you found in the Coca-Cola syrup used in that period?

A. The reason I strain it is on account of sometimes you find a splinter. Knocking the bunghole in, there is a piece of bagging that will come in contact with the pump, and if you don't strain it, it will stop the pump.

Q. If you bore a hole in the side of keg, will that give splinters or sawdust in the Coca-Cola syrup?

A. Yes, sir.

Q. Have you ever found anything in the sediment or what is left in the sediment except this?

A. Some char from the barrel or something of that kind.

CROSS-EXAMINATION,
BY MR. MILLER:

Q. You are not a bacteriologist?

A. No, sir.

Q. You don't know what kind of germs might be in there that you could not detect?

A. No, sir.

(Witness excused.)

J. W. MALLET,
resumed the stand for further examination:

REDIRECT EXAMINATION,
BY MR. HIRSCH:

Q. You stated on examination you were at Maywood, New Jersey, and saw Merchandise No. 5 manufactured?

A. Yes, sir.

Q. On how many occasions?

A. Two.

Q. What kind of wine was used in the manufacture?

A. White California wine.

Q. I will ask you in the case of soda water where they have raspberry or strawberry flavor, is it possible to detect the quantity of this flavor or where the flavor is derived from?

A. No, sir; neither is the material giving the flavor known, nor is it possible to determine the amount.

Mr. Miller: I move to exclude that.

The Court: The motion is overruled. It is offered as an illustration, I take it.

CROSS EXAMINATION,
BY MR. MILLER:

Q. Now, then, how far apart were these occasions when you were at Maywood, New Jersey, and observed operations there, Doctor?

A. One, I believe, was in the month of November, and the other in the month of March following — November, 1909, and March, 1910.

Q. What is the percentage of extractive matter in California white wine?

A. I was questioned before upon that, sir, and I stated I had no knowledge myself of from any experiments with that particular wine, but there are recorded a percentage of extractive matter including tannin, as far as I have been able to learn, from one and four-tenths to two per cent.

Q. Of extractive matter?

A. Yes, sir; solid matter left on evaporation.

Q. And of that extractive matter, what proportion of that is tannin?

A. That I can't answer. It has never been determined.

Q. California white wine has a taste, that is the white

wine used at Dr. Schaefer's factory?

A. Yes, sir.

Q. Which is very distinctive?

A. Yes, sir.

Q. Now, I will ask you if you know of any authority upon the subject of tannins from which you could determine the percentage of tannin in kola?

A. I know of none by which it can be determined with accuracy.

Q. I will ask you to consult the publication which I pass to you, which is a German publication — you read German, I believe — by Kinker, and I will ask you if he does not give the amount of tannin as contained in cola, and if so, to tell us if that is not a standard publication, and what amount is given.

Mr. Hirsch: He was asked as to whether there was any authority as to how to determine the amount, and now he gives him an authority to show ——

BY MR. MILLER:

Q. State whether or not this is a standard publication.

Mr. Hirsch: We can admit that was a standard publication and it would not be contradicting the witness.

Mr. Miller: Well, do you admit it?

Mr. Hirsch: I said we could, I don't know anything about that authority.

Mr. Miller: I think the witness will state this is a standard publication and does record it, that it is an authority on that subject, and as he says he does not know the percentage, I will ask him to refresh himself and tell us what percentage is.

The Witness: The publication is a journal of applied chemistry, and of course is, as a whole, a good authority, but it contains articles by different persons — as to whether or not the articles can be said to be good authority, I do not know. The article to which my attention is drawn contains also reports of analyses of cola nuts made by many different persons and some show tannin and others do not give tannin or the alleged percentage.

BY MR. MILLER:

Q. Now, Doctor, called on to state as to the amount of extractive matter in the cola nut from your own knowledge and with the publication which you have before you, if you regard it as reliable, I will ask you to state what is the percentage of extractive matter in cola?

A. I can't answer, sir, from my own knowledge. I have not myself determined it, and the statements here are from

different authorities and different persons, some of them I know nothing of, and they differ amongst themselves.

A. Then you know of no authority by which it can be determined as to the amount of extractive matter in cola?

A. Not with accuracy. Here are certain statements which must be taken for what they are worth.

Q. Do you know of any authority that would throw any light on the inquiry as to the percentage of tannin there would be in this extractive matter that would come from cola?

A. I can only repeat what I have stated. Some of these statements give an alleged percentage — they do not give the percentage or give any means of judging whether the figures given are correct — they stand for themselves, and ought to be taken for what they are worth.

Q. Do you class tannin as extractive matter?

A. It practically comes under that head, but of course the word extractive matter, is not one of strict scientific meaning, but it means what is included in the particular salt, in the case above it is dilute alcohol, and is generally intended to group together in those substances the nature of which is more or less indefinitely known and individual amounts of which are unknown.

Q. Didn't you in your analyses of Coca-Cola syrup class tannin as a preparation of extractive matter?

A. Certainly, I lumped it together with the other.

Q. Then, isn't it generally recognized as a part of the extractive matter?

A. When tannin is present there — there are many cases in which the extractive matter is given without indicating anything.

Q. Yes, in this extracted matter that you got as a whole from this decoction that you had made you did not determine the relative amounts of tannin at all?

A. No, sir; because I didn't believe it possible.

Q. Now, isn't it also true that tannin that is found in California wine, that is present there, that after wine has been in the cask or the barrel, there is a percentage of tannin that results from the contact of the wine with the cask or barrel, depending on the length of time that it would have been contained in the container?

A. When the barrel or cask is made of oak, as it commonly is, that is very frequently the case.

Q. And that is likewise a variable percentage, is it not?

A. Yes, sir.

(Witness excused.)

S. P. SADTLER,

recalled for further examination, testified as follows:

DIRECT EXAMINATION,
BY MR. HIRSCH:

Q. Doctor Sadtler, you advised me on yesterday evening that you would like to take the stand and correct an error you had made in your testimony.

A. Yes, I had stated in cross-examination with regard to the tests for tannin and the getting of the olive green coloration — the majority of these tests, all of them were distinctly described by the action of reagents when gotten with No. 5 or else with the coca extraction matter, so-called which was obtained from the decocainized leaves after a previous treatment with chloroform, and then the aqueous solution cleared and tested with reagents. I said in answer to the question that I had gotten this reaction with the whole syrup — Coca-Cola syrup. I find a reference in my notes, to the effect that I did get a corresponding olive green color with the Coca-Cola syrup. I am inclined to think — I have not an accurate record here, but I think I got that coloration. I have a definite statement — after I had tried the test with the fuller's earth in connection with the caramel — because I am free to confess that in Coca-Cola syrup, as the finished product, the color is too deep to show olive green coloration with ferri chloride. I want to make that correction so as to put it straight in the record.

CROSS EXAMINATION,
BY MR. MILLER:

Q. Were the experiments you made on the decoction of coca and cola and Coca-Cola syrup without attempting to separate the tannin and working on them alone?

A. There was no separation in actual sense, of the tannins. I explained yesterday that I made separate decoctions of the tannin coca leaves and cola nuts, and use those filtered decoctions to test. I also tested the aqueous solution obtained from the decocainized leaves sometime before that and made a number of tests, including one with ferric chloride.

Q. Then, as I understand, there was no attempt to separate the tannins by you, was there?

A. Not with accuracy.

Q. Was there any attempt made?

A. No, sir; not to separate the tannins from other matter which would be in the decoction.

Q. How did you filter the decoction of cola, if you did do that?

A. As I stated yesterday, the ten grams of the ground cola nut were digested, boiled in one hundred cc. of water. That was allowed to rest half an hour after the boiling, and

then filtered, and that filtered clear decoction was taken for the test.

Q. Do you state that in that kind of treatment, you can filter out any substance of the cola at all?

A. The insoluble portions are filtered out.

Q. Did you determine what that was?

A. No, sir.

Q. What kind of a filter did you use, a cloth strainer or paper?

A. It was the ordinary qualitative chemical filter paper.

Q. How much of the solution went through?

A. Filtered the whole decoction.

Q. How much was that?

A. We obtained in the test?

Q. After it had gone through the paper, I mean, how much did you get?

A. There was obtained in that test probably 25 cc., that is approximately several fluid ounces.

Q. What are the ingredients in the extract of coca other than the tannins?

A. I do not know from intimate accurate examination. I do not know whether it could be made very readily. I found resinous matters, matters which, however, were made more soluble in a little ammonia which I added to the solution, and then I brought into a solution a little more fully with the aid of ammonia, and then let it stand in a warm place. I allowed the ammonia to disappear before the tests. They were in the nature of slightly resinous matters.

Q. That was in the extract of coca?

A. That was in the decocainized coca leaf.

Q. The infusion you made from that?

A. Yes, sir.

Q. What are the ingredients in the extract of cola other than the tannin?

A. I do not know except from that published statement in regard to cola.

Q. In that ammonia test that you speak of, do you think you got rid of all the ammonia?

A. I do.

Q. By allowing it to stand that length of time?

A. I do. I took care to see to that.

Q. That was the only test you applied to rid the decoction of ammonia — that was the only one you have described?

A. I was sure the ammonia was off. I tested it with a delicate test to see if any of the ammonia was left.

Q. What was that test?

A. Hydrochloric acid fumes.

Q. Would that detect minute quantities?

A. It will detect any appreciable quantities more than just a small test, that would be recognizable.

Q. You did not attempt to make a quantitative analysis to determine as to amount of tannin — let us distinguish between qualitative and quantitative. Did you make a qualitative test to determine whether or not the ammonia was present?

A. I did not try anything like Nessles reagent, no extremely delicate test for ammonia.

Q. If you do not know what the ingredients were, and I understand from your statement that you do not pretend to give us all that was in the extract of Coca-Cola, how can you tell that they might not have an influence on the tannin reactions that you resorted to?

A. I do not suppose that could be stated positively, but the reagents are those which are usually recognized and applied for the examination of tannin-obtaining solutions.

Q. They are the general free agents, as I understand you, but you do not pretend to state that these other substances you found in connection might have influenced it in some way?

A. No, sir; I don't say that it is possible.

Q. Do you know whether or not if there would be a slight difference between the tannin of coca and of the cola nut, whether it would be due to a different concentration of the solution?

A. In the comparative test I applied, I did not have that condition. I had taken the same weights of material and the same amount of liquid to make my solution.

Q. How do you account for the reddish tinge which you say was present when the ferric chloride was added to the cola tannin?

A. Without any very special investigation of the matter, I believe that the color given by ferric chloride with the tannin of cola nut, is always slightly different in color from that given by the coca leaf. I got in the coca leaf a very strong olive-green coloration. I got in the other case a different shade of green, a greenish red I should call it. I suppose that is characteristic of the cola tannin under those circumstances.

Q. Now that distinction as to color or difference of coloration results in the case of many tannins when ferric chloride is applied, does it not?

A. Yes, sir; there are many changes of color.

Q. Did you ever hear of or know of what is termed cola

red?

A. Cola red is the decomposition product resulting from the compound called colanine, which originally present in the fresh cola nut, and what is chemically called glucosize which breaks up under various influences, sometimes under dilute acid and sometimes under the influence of exposure to air in solution, and cola red is a decomposition product of that.

Q. Do you know what acetate of lead precipitates from the decoctions of coca and cola such as you have besides tannin?

A. I don't know except that lead acetate would probably precipitate a good deal of coloring matter in addition to the reaction for tannin.

Q. You never made any analysis to determine what else it would precipitate?

A. No, sir.

Q. Now, take Merchandise No. 5, would not those solutions you applied precipitate any combination of tannins that might be in the Merchandise No. 5, or are you prepared to speak on that point?

A. Do you refer to the ferric chloride reaction applied to Merchandise No. 5?

Q. I mean the tests that were applied, would not they precipitate a combination of tannins that might be in No. 5 along with any other matter that they would precipitate? I am talking chiefly about the lead acetate you use.

A. Some of them would and some of the reagents would precipitate more than one tannin.

Q. How about lead acetate? What would it do?

A. Lead acetate would probably precipitate a mixture of several substances.

Q. Is lead acetate a characteristic reagent or reaction under those circumstances?

A. For tannin, do you mean?

Q. Yes.

A. Not as distinctive as ferric chloride reaction.

Q. Did you separate the coloring of the tannin — I mean did you separate the tannin from the coloring matter in either of the infusions?

A. In the examination of the cola tannin, I tried to follow the work of Doctor Prescott, who had made a study of cola tannins, but I worked with the dried ground cola nut and he had worked with the fresh cola nut. I was not successful in getting the cola tannin. I added acetic ether and then removing the chloroform in that way, I did get the tannin material in a purer condition than it otherwise would have been gotten.

Q. Then in these experiments you did not use acetic ether?

A. In the case of the cola tannin, not in the case of the coca leaf, only in the case of the cola tannin, and those were not experiments that I described as being comparative experiments of the two decoctions.

Q. Now, then, what does Prescott give as the per cent of tannin in cola?

A. I do not remember whether he states that in that article or not. I refer to an article which he published in 1897, I think it was on the peculiarity of the cola tannin of the cola nut, but I do not know that he gives the precipitant of tannin. I do not recall it.

Q. There is an appreciable quantity of the tannin in the cola?

A. Yes, sir.

Q. When the tannins of coca and cola are mixed together, how can you determine the relative amounts, Doctor?

A. I don't suppose it can be done quantitatively.

Q. Then you can't apply the comparative test, can you?

A. Well, I said it could not be done quantitatively — I think that the intensity of the color reactions would be a partial indication as to the relative proportion.

Q. Now, if you bring in contact with these tannins the tannin of California wine and also such as might come from the barrel or cask in which the wine has been contained, then is there any comparative test?

A. I think it is possible despite that, for the reason I have tried tannin reaction of California wine used at Maywood, New Jersey, and it is very trifling, it is not of such nature as to interfere with the color reaction of either of the other two.

Q. The difference in the amount of extractive matter you get from No. 5 and that which you get from Coca-Cola syrup, the finished product, that is the percentage ——

A. I don't know as they are comparative, because in the case of the Coca-Cola syrup you have fifty per cent of sugar, and the two are not really comparable because the Coca-Cola syrup is a composite.

Q. Now, what is the difference that you would get between the cola tannin and the combination tannin, that is of Merchandise No. 5 and all these combined together which you found in Merchandise No. 5?

A. The results found as determined by the ferric chloride in the combined tannins, is found in Merchandise No. 5 — that of coca — and then that of coca leaf tannin.

Q. State what that consists of, both as to coloring and

likewise as to percentage?

A. I can't give it to you.

The Court: He has stated that he can't give you the percentage. Now, as to the coloring ——

The Witness: The resulting color is that of coca leaf tannin.

Q. And that is the only thing you have to go by and that is the thing upon which you base your answers that there is a difference between the two?

A. Well, I have examined the coca leaves and I have examined No. 5, and I have gotten the same reaction and the same odor of the coca leaves in the extractive matter from No. 5, and the similarities were so distinct that I think that I was entitled to think that the same material was there.

Q. Now, while you were observing this process at Maywood, New Jersey, what proportion of California wine, this white wine was mixed in order to make Merchandise No. 5?

A. If I remember right, eighteen barrels were taken to make 900 gallons of the product.

Q. And these hold how much approximately?

A. Fifty gallons to the barrel.

Q. Fifty?

A. Yes, sir.

Q. Doctor, as a result of the color reaction, could you give us approximately an idea as to the amount of combined tannin present in No. 5?

A. No, I can't do that.

(Witness excused.)

C. E. CASPARI,

recalled for further examination, testified as follows:

CROSS EXAMINATION,

BY MR. MILLER:

Q. Now, Doctor Caspari, you heard the testimony of Doctor Fuller as to his use of animal charcoal in the test that he made.

A. I did not hear his testimony, I was not here when it was given, but I have read the transcript of it.

Q. I will ask you if it is not a fact that the use of animal charcoal, if it had any effect at all, it would merely serve to decrease the amount of caffeine content and that it would have no other effect?

A. You mean so far as quantitative relationship is concerned?

Q. Yes.

A. I think that is true.

Q. Would it have any other appreciable effect so far as the determination of the caffeine content is concerned?

A. No, sir; but there is to be said that the amount of decrease would not be constant.

Q. I agree with you about that altogether, but could it have an effect otherwise than that?

A. No, sir; it could not.

Q. That is the only effect it would have in the various analyses that Doctor Fuller testified to and you have read the testimony, that it might have made a slight increase?

A. No, decrease.

Q. I mean decrease, and that would not have been appreciable?

A. I am not prepared to say that.

Q. It would be what you generally term negligible?

A. It might have been a very small quantity, but figured on the percentage basis on the entire amount of caffeine present, it might have been appreciable decidedly?

Q. That is the only effect it would have had?

A. Yes, sir.

Q. What was your process when you came to using the solvent for determining the quantity of extractive matter in coca or cola — did you use water first or did you use chloroform, or what did you use?

A. I did not attempt to determine the extractive matter in Coca-Cola — quantitatively.

Q. Can you determine that?

A. Approximately, but not accurately.

Q. What is the approximate percentage of tannin in cola?

A. I don't know.

Q. I thought you said you could tell?

A. I can do lots of things I have not done, and that is one of them.

Q. You are not prepared to give an opinion as to the percentage of tannin in the coca either?

A. No, sir.

Q. And in these analyses you did make of merchandise No. 5, what was the percentage of extractive matter which you found?

A. I didn't determine the percentage of extractive matter.

Q. Did you determine the quantity of it in any given amount of the mixture, and if so, how much?

A. No, I did not.

Q. What kind of coca did you use when you were mak-

ing the infusion of coca?

A. You mean what is the botanical variety?

Q. Yes.

A. I don't know which it was. It was coca I had taken from Doctor Schaefer's factory. The coca leaves I had taken from Doctor Schaefer's factory.

Q. Do you know whether it had been decocainized?

A. It has not been decocainized when I got it.

Q. Did you attempt to decocainize it?

A. No, sir; I did make the experiment, however, on a sample of decocainized leaves, that I also got from the factory.

Q. You only knew they were decocainized by what somebody told you?

A. I saw them decocainized.

Q. By that process which he described?

A. Yes, sir.

Q. If I understand your experiment on the leaves you put in the infusion, that was based on the leaf before it was decocainized?

A. Yes, sir.

Q. What experience, have you had, Doctor, in the study or determination of tannin contents?

A. It is pretty hard to say. I have determined the presence of tannin in quite a number of different things. I have only made a very few quantitative determinations of it.

Q. Can you state what, if any, difference there is in the behavior of the tannin of the cola and the tannin of the white California wine under the treatment that you gave in your analyses you testified about in chief?

A. Yes, I think I can?

Q. What is the difference?

A. In the first place, the white California wine contains a very minute quantity of tannin. It contains less than one-tenth of one per cent. of tannin. That is based on figures in Leach's Food & Drug Extraction, and the California wine in Doctor Schaefer's factory, when tested with ferric chloride, for example, gives only a very faint reaction for tannin, and that is in the color, reddish-brown is the color produced when the infusion from the cola nuts is treated with ferric chloride.

Q. You mean by that when you apply ferric chloride directly or brought it in contact with the wine?

A. With the wine, yes, sir. In other words, you can give me California wine and an infusion of cola nuts, and I think I could tell the difference between them.

Q. That test you have referred to, would be as to the

wine by bringing it directly in contact with ferric chloride?

A. Yes, sir; I would add ferric chloride to the wine.

Q. Did you make any tests of the California wine that was used in Doctor Schaefer's factory to ascertain whether there was tannin in it, the percentage of tannin I mean?

A. No, sir.

Q. You don't know how long it had been contained in the casks or barrels from which it was taken?

A. No, sir. I made a qualitative test on that wine, understand, but not any quantitative test.

Q. What reaction will the tannin of cola give with iron chloride, Doctor?

A. The tannin of cola?

Q. Yes.

A. The infusion that I made from cola nuts, practically ten per cent infusion, reacted and produced a reddish brown color which — you said with ferric chloride?

Q. Yes.

A. A reddish brown color.

Q. What was the reaction in the case of gelatin?

A. I used a one per cent solution of gelatin, one part of gelatin to a hundred of water, and got no reaction with infusion of cola.

Q. How did it behave in cinchonine sulphate?

A. I got a very slight precipitant, so slight as to be negligible, merely turbidity.

Q. And what you would call qualitative rather than quantitative?

A. All of these reactions, I think I said a dozen times, were qualitative and not quantitative.

Q. Did you obtain that reaction after you had boiled the cola?

A. I didn't boil it, I poured the water boiled it, the water, and poured it on the powdered cola nuts and left it stand a half hour and filtered it and used that filtrate.

Q. Did that cool or not in the meantime?

A. Yes, sir; it cooled.

Q. And how much filtrate did you get, how much went through?

A. Now, I didn't measure that. I would have to estimate that, but I should say about two-thirds of the water I used originally was recovered.

Q. What would that amount to?

A. I used 100 cc, about three fluid ounces or a little over, and I got about nearly, as I could judge, about two ounces back of the former filtrate, of the particular filtrate.

Q. By tannin, that means tannic acid always?
A. Yes, by tannin.
Q. How do tannins in general and cola tannins in particular behave toward starch?
A. I don't know how; cola is a sort of starch. There is some starch in the cola nut. We can see that by the fact that the powdered cola nuts swell up a little when you add water to them and let them stand.
Q. Well, explain in detail, then please, the qualitative difference between the reaction or reaction agent that you applied then to coca tannin and the combined tannin found in Merchandise No. 5?
A. In the first place, I want to get away from the use of the word tannin. I did not isolate the tannin — I worked with a decoction of cola and coca and Merchandise No. 5.
Q. And you had in each of your mixtures other things aside from your tannins?
A. Yes, probably.
Q. And you are not prepared to say that those other things did not influence the tannins?
A. Yes, sir; they might have done it, but it is immaterial what you call that substance, whether you call it stewed prunes or tannin, you get the same reaction in the three instances, and whatever the per cent in that is shown to be present in there.
Q. Now, does the fact show that there is any difference qualitatively, and if so what was it between — that is qualitatively now?
A. (Interrupting.) I understand.
Q. In the results obtained in these three infusions of coca and cola and Merchandise No. 5?
A. I can best state that difference by saying that in the qualitative reaction in Merchandise No. 5 the presence of the constituents that were present in the decoction of coca predominated distinctly over those of the cola decoction.
Q. Now, then, give those specific reactions so that we can ascertain what they were.
A. I gave those the other day on cross examination.
The Court: I think the witness went through that.
The Witness: I went through that all, and it is in the record.
Mr. Miller: There is not anything here from which we can determine how he draws his conclusion.
The Witness: I have no objection to stating it again if you desire it.
Mr. Miller: His conclusion is given now like it was the other day, but the premises from which he draws it, are

not given.

The Court: He went into it into considerable detail.

The Witness: I went into it with the different reagents, the lead acetate, the potassium ferri cyanide, the ferric chloride, gelatin and cinchonine sulphate.

BY MR. MILLER:

Q. You applied that to all?

A. Yes, sir.

Q. From that application, you conclude that there was a distinct predominance of one tannin as against the other?

A. Well, I would go so far as to say a distinct predominance. There was evidence that the material in the cola infusion, the cola tannin or the tannin derivative or tannin-like substances, — there was more of that present in the No. 5 than there was of the material characteristic of the cola infusion.

Q. How can you tell that?

A. Well, because the qualitative reaction for the coca constituents were more — I can't think of the word — more accentuated than were the reactions for the cola infusion.

The Court: If you say those details are not contained in the former testimony, you may ask for them.

Mr. Miller: He has now given them, and I don't want to go any further in detail on that point.

BY MR. MILLER:

Q. I understand that the same tests were applied to all, but it is suggested to me that the specific test from the chemical standpoint has not been given in detail, and if he gives it as to one, I understand the same treatment is as to all. Now, give it as to one.

A. The No. 5 was first evaporated and got rid of the alcohol present, and then diluted again with water back to the original volume and then extracted with acetic ether, and that acetic ether was then separated and evaporated off on the water bath, and that residue was taken up with water. The insoluble matter was filtered off and to that filtrate was applied tests with the agents which I enumerated and which I gave in connection with the coca and cola infusion.

Q. From that point, I understand the process was identical?

A. Yes, sir; I took several portions of the sample of coca and cola and prepared a solution of No. 5.

Q. Did you take the same quantity to start with?

A. Approximately in the case of the cola and coca infusions, and I took very closely the same amount.

Q. But how about No. 5?

A. Approximately the same.

Q. How much was that?

A. How much of No. 5 did I start with?

Q. I mean from this point.

A. From this point on, I took it — as near as I can estimate it, about 5 or 10 cc.

Q. From that point the treatment was similar?

A. Yes, sir.

Q. Give the detail?

A. I added to one portion of the solution lead acetate and obtained a light, dirty colored precipitant from that. To another portion I added the ammoniacal solution potassium ferri cyanide and I got a dark reddish-brown color from that. To another, I added ferric chloride and got an olive green color. That reaction, more than anything else showed me that the tannin or tannin-like substance, whatever it is of the coca, was present in larger quantities than the tannin like substance of the cola, because of the predominance of the olive green color as against the brownish red which coca alone produced with the ferric chloride. Then the action with cinchonine sulphate and with gelatin were tried. Separate portions of those solutions were treated in the same way, and I got such a — you couldn't call it a precipitant but a turbidity with gelatin which I got with coca, but not with the cola at all, and with the cinchonine sulphate, a very, very slight precipitant. The strength of the cinchonine sulphate solution was between one and a half and two per cent.

Q. Did you get a precipitant with Merchandise No. 5?

A. With which reagent?

Q. With the cinchonine?

A. A very, very slight one.

Mr. Miller: Those questions as to details were prepared by someone after the testimony was given.

The Court: I have no doubt you are covering everything.

(Witness excused.)

W. H. FOSTER,

the next witness called on behalf of the Coca-Cola Company, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. What is your occupation?

A. Foreman at the Coca-Cola Bottling Works.
Q. Here in Chattanooga?
A. Yes, sir.
Q. Are you the W. H. Foster to whom the forty barrels and twenty kegs attached in this case were turned over to hold?
A. Yes, sir.
Q. Did you submit any samples out of that attached product to anyone, and if so, to whom?
A. I sent six lots.
Q. Give the dates and the persons to whom you made each one of those shipments?
A. I sent one lot to S. P. Sadtler, Philadelphia, on 11/27/09.
Q. You sent them all by express.
A. Yes, sir.
Q. That was fountain or bottlers syrup?
A. Fountain.
By the Court: Give them all.
The Witness: To A. E. Caspari, St. Louis.
Q. Is that A. E. or C. E.
A. It is C. E.
W. S. Haines, Chicago. L. Veillong, St. Louis.
Mr. Sizer: That was one that was not introduced; you needn't mention that.
A. J. A. Wesener, Chicago. V. C. Vaughan, Ann Arbor, Michigan. That was on the 11/25/09.
Q. 25th of November, 1909?
A. Yes, sir.
Mr. Miller: We will want to recall him when we get certain samples.
(Witness excused.)

J. F. JOHNSON,
recalled to the stand for further examination, testified as follows:

DIRECT EXAMINATION,
BY MR. SIZER:

Q. Who furnishes the bottles and bottle tops in which you put up the bottled coca-cola here?
A. The Ruth Glass Company, of Terre Haute, Indiana, and the Chattanooga Bottle and Glass Manufacturing Company, of Chattanooga, furnish the bottles, and the tops are furnished by the Crown Cork & Seal Company, of Baltimore.
Q. They are purchased by you?
A. Yes, sir.
Q. Are they purchased by you or by the Coca-Cola

Company, of Atlanta?

A. They are purchased by the plant here.

Q. Do the Coca-Cola Company, of Atlanta, have anything to do with getting them?

A. No, sir.

Q. One or two bottle tops have been introduced containing the name Coca-Cola without the hyphen, and also a bottle containing the name without the hyphen; can you explain how the omission of the hyphen on that bottle and top occurred?

A. I can tell it only as the manufacturer told me.

Q. What do you furnish the manufacturer?

A. We furnish the trade mark to the manufacturer always.

Q. Containing the hyphen?

A. Yes, sir.

Q. Do you or not instruct the manufacturers to copy the name on the bottles as contained in the trade-mark?

A. Yes, sir.

Q. And as a matter of fact are the bottles you are now using, bottles that have the hyphen on?

A. Practically all of them.

Q. Do you know how many were made without a hyphen?

A. A very small per cent and that was an accident?

Q. Is that true with respect to the tops?

A. The tops that were used in 1909 and 1910 and that we are using now, have the hyphen. There was a short space of time, perhaps a month or so in each year, that we have used the top without the hyphen.

Q. Why was it that tops without the hyphen were used?

A. I don't know how they happened to furnish that, but I know that in 1909 and 1910, we used the hyphen.

Q. Was there any intention of getting bottles or tops without the hyphen or to depart from the copy-righted name?

A. No, sir.

Q. I hand you a collection of certain objects, and I ask you to state what they are.

A. Advertising matter used by this plant, all of it, with the exception of the bottle and the crown top that is furnished the local plant for distribution.

Q. These are the bottles in which you bottle Coca-Cola?

A. Yes, sir; there are eighty thousand like that in the trade now.

Q. What is this?

A. Thermometer.
Q. Sent out as advertising matter?
A. Yes, sir.
Q. And this?
A. A sign.
Q. Is that also advertising matter?
A. Yes, sir.
Q. And these?
A. Blotters.
Q. Advertising matter again?
A. Yes, sir.
Q. What is that?
A. Another sign.
Q. What is this?
A. Napkin.
Q. These are bottle tops?
A. Yes, sir.
Q. And that?
A. Another sign.
Q. And this?
A. Another sign.
Q. That is oil-cloth sign?
A. Yes, sir.
Q. And here is another oil-cloth sign?
A. Yes, sir.
Q. Was not there a card in there?
A. I don't remember it.
Q. Yes, here it is. This a base-ball score card?
A. Yes, sir.
Q. What is this?
A. A waiter.

CROSS EXAMINATION,
BY MR. MILLER:

Q. When was it that this occurred that you didn't get the hyphenated name?
A. The foreman said it was the latter part of the year that the hyphen wore off.
Q. The latter part of 1910?
A. Yes, sir. We got a lot of bottles in then and some of them are in the trade yet.
Q. Some of them in the trade yet?
A. Yes, sir.
Q. By "in the trade" what do you mean?
A. They are mixed with our bottles.
Q. Do you use the same bottle more than once?
A. We use it as long as it lasts.
Q. You continue to use your bottles over and over?
A. Yes, sir.

Q. You call that being in the trade?
A. Yes, sir.
Q. Look at this bottle we have here and see if you could find any hyphen on that top or on the bottle?
A. No, sir; this is one of the bottles we had the other day that has not the hyphen on the bottle or on the top.
Q. All of these bottles that accidentally got out without the hyphen being on the bottle also had tops on them that were accidentally made without the hyphen being on the top?
A. They didn't all have it. Last year we used hyphenated crowns all year except a month or six weeks.
Mr. Miller: I want to put that in as Exhibit C.
(The exhibit was marked as requested.)
Q. There is no hyphen on the top or bottle?
A. No, sir.
Q. Now, look at this that I will file as Exhibit Y and state whether there is any hyphen on top or bottle of that?
A. No, sir.
Q. Here is another which you will mark Exhibit X. Now, I will ask you to state whether there is any hyphen on the top or the bottle of that?
A. No, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. Do you know whether those bottles came out of the same case?
A. No, sir.
Q. You have no means of telling when they were put in?
A. I know when the new crowns came in with the hyphen on them. We were using a crown without a hyphen until the 15th of March.
Q. Commencing when?
A. On the 15th of March, they were billed from the Crown Cork & Seal Company.
Q. Of this year?
A. Yes, sir.
Q. How long have you been using this advertising matter, such as filed here?
A. For years, ever since we have been in business.
Q. How long have you been in business as bottling Coca-Cola?
A. I don't know, but I think nine or ten years this plant has been running.
Q. And this is the kind of advertising matter used in all that time?
A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. How do you account for these periods that the hyphen got out of fix both at the bottle factory and the cork factory?

A. I don't think it got out of fix at the Crown Cork & Seal Company. I think they were making it that way, but the plate at the bottle works got out of fix.

Q. So you have been using it right along with the top without a hyphen?

A. Yes, sir; when they furnished them without it, we use it.

Q. Your relations with the Coca-Cola Company, the claimant in this case, are very intimate?

A. Yes, sir.

Q. Your syrup is all procured from the Coca-Cola Company, and if there is an infringement suit or trade-mark suit brought anywhere, you frequently defend it jointly?

A. No, sir; the Coca-Cola Bottling Company sell me the syrup. They ship it from Atlanta and I buy it from the Coca-Cola Bottling Company.

Q. I asked if your company, in connection with the Coca-Cola Company, did not file a suit against a bottling company in South Carolina?

A. I don't know anything about that.

Q. What is the style of your company?

A. The Coca-Cola Bottling Works.

Q. You never heard of that suit?

A. I never heard of that South Carolina suit until Judge Candler read it in his testimony the other day. That was the first I ever heard of it.

Q. That is the first you ever knew that your company had a suit?

A. That is not my company.

Mr. Sizer: We may have a question or two to ask of someone else, but we are about through.

The Court: We will adjourn until tomorrow morning at nine o'clock.

(Thereupon at two o'clock, Court adjourned until nine o'clock A. M., April 1st, 1911.)

CHATTANOOGA, TENNESSEE,
SATURDAY, APRIL 1, 1911, 9 O'CLOCK A. M.

Court met pursuant to adjournment.

Appearances: Same as before.

Mr. Sizer: May it please your Honor, the defense is through, with the exception of a deposition which we have been expecting ever since the proof commenced, but which

has not reached here yet. In the event that deposition reaches Chattanooga before the case goes to the jury we would like to offer it. With that statement we rest.

The Court: If the deposition gets here before the trial closes, you mean?

Mr. Sizer: Yes.

The Court: With the right on the part of the Government to rebut it, that may be done.

Mr. Sizer: Then we rest.

CLAIMANT RESTS.

THE GOVERNMENT IN REBUTTAL.

The Government then recalled the following witnesses:

C. HOWARD CANDLER,

being recalled for further examination, testified as follows:

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Mr. Candler, while you were on the stand you were asked to give to the chemists of the Government, Doctors Fuller and Emery, the ingredients and the proportions in which they entered into the Coca-Cola syrup?

A. Yes, sir.

Q. Well, did you do that truthfully?

A. Yes, sir.

Q. Now, in this batch of ingredients that you made up without the Merchandise No. 5 and sent out one of them to Doctor Caspari, is it or not a fact that you made one gallon of that mixture?

A. No, sir. I got that out of the tank.

Q. What was the batch that you made up in which there was one gallon, if there was one?

A. That is the batch I made, omitting Merchandise No. 5.

Q. And you sent a sample of that to Doctor Caspari?

A. Yes, sir; along with the regular Coca-Cola.

(No re-direct examination.)

Witness excused.

Mr. Miller: We desire to call Judge Candler to the stand for a few questions.

JOHN S. CANDLER,

being recalled for further examination, testified as follows:

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. You stated in chief, Judge Candler, that this mix-

ture of Coca-Cola had been made according to the same formula ever since you had known about it, so far as you knew. I will ask you to state whether or not that answer was based on your personal knowledge, or whether it was based in part on information that you had received prior to the time you made this contract with Doctor Schaefer.

A. Well, as I told you, I am not a chemist. I never myself manufactured Coca-Cola, but I have represented the Coca-Cola Company ever since its organization. I represent my brother, Asa G. Candler, who manufactured Coca-Cola before he sold it to the Coca-Cola Company. My office was in the same building with him. I was there daily, constantly connected with the business, and from those facts I stated that there had been no change in the formula from 1888 to the present time.

Q. Now, then, I ask you if it is not true that about 1892—I mean 1902 to 1904, you learned that there was a per cent. of cocaine in the mixture in the trial in the United States Court in Atlanta, and shortly thereafter that this contract with Doctor Schaefer was made.

A. If I can state what I learned—

Q. (Interrupting) That is just what I have asked you to do.

A. Yes. I will state that on the trial of the case in the United States Court it appeared from a statement by Doctor Crampton, a witness from the Treasury Department of the United States, that upon analysis, my recollection is, of some eight ounces of Coca-Cola syrup that he had been able to find, according as I recall his testimony, a bare trace of cocaine in that large quantity. He testified that the only way he could tell it at all was by touching it to his tongue, that he could not state there was any appreciable quantity there at all, but that that large quantity of syrup — with that large quantity of syrup, he had been able to get what he thought to be Coca-Cola—I mean, what he thought to be cocaine, and was able to state that it was cocaine from touching it to his tongue.

Q. That Doctor Crampton met you here yesterday for the first time during the trial?

A. I think I met him yesterday—it is immaterial; I think I met him either yesterday or the day before.

Q. And didn't your own chemist, Doctor Payne, in that same trial against The Coca-Cola Company, testify that there was approximately one four-hundredth of a grain of cocaine in that mixture, on that same trial?

A. My recollection is that Doctor Payne testified on that trial that there was not exceeding—that has been

nine or ten years ago and I think what you state is approximately correct. My recollection is that he testified there was not exceeding one four-hundredth of a grain.

Q. Of cocaine in an ounce of the mixture?

A. Yes, sir, of the syrup; that is my recollection of Doctor Payne's testimony.

Q. And shortly after that this contract with Doctor Schaefer was made?

A. My recollection about that, Mr. Miller, is that contract with Doctor Schaefer was not made for probably a year or so after that, and the reason for that was this: We were engaged in litigation with the United States Government on the question of that tax. My view of it was that there should not be one iota of change made until that litigation was over; I did not want it to appear in any way that we had made the slightest change in that until after that litigation was over. I did not want it to affect it one way or another, and my recollection is that litigation was not concluded in the Court of Appeals, finally concluded, for probably a year after that trial. But, of course, you will understand that these spaces of time are purely from recollection; I do not undertake to be definite about it after this length of time.

Q. Now, that litigation, as I understand, was as to whether or not this was a medicinal preparation.

A. As to whether or not this was a medicinal preparation and subject to the tax under the War Revenue Act, and it was decided it was not.

Q. It was decided it was not?

A. Yes, sir; on the trial of that case.

Q. Isn't it true that during all the time, speaking from your knowledge and information that you received, with your office there in this Coca-Cola Building, that Merchandise No. 5, or what has been popularly termed "Merchandise No. 5," has been used in the making of this mixture of Coca-Cola?

A. Merchandise No. 5 entered into the manufacture of Coca-Cola, from my knowledge, from 1888 up to the present time. Merchandise No. 5 has not been changed in the slightest degree except to eliminate that bare trace of cocaine which Doctor Crampton testified was there. It was never our purpose to have any cocaine there.

Q. I understand.

A. We always understood that there was none there, never intended there should be any there, and we did not know it was there until Doctor Crampton had found it.

Q. And Payne?

A. Yes, sir; until Doctors Crampton and Payne had

said it was there, and as soon as we could after that we got the best man we could find in the United States to get it out.

Q. And that was Doctor Schaefer?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. SIZER:

Q. There is just a question or two I want to ask you, Judge Candler. You say that Doctor Crampton represented that he found one four-hundredth part of a grain?

A. No, Mr. Sizer, I didn't mean to say that. I do not think that Doctor Crampton designated any amount; my recollection is that Doctor Crampton said that he had found an inappreciable amount, a bare trace; that was Doctor Crampton's testimony, as I recall it.

Q. Is it true that Doctor Payne testified that there was one four-hundredth part of one per cent. under analyses?

A. Well, I must say I cannot say whether he said one per cent. or a grain, whether one four-hundredth part of one per cent. or one four-hundredth part of a grain. It has been a long time, but I do remember very well the one four-hundredth of one per cent., whether it was a grain or a per cent. I would not say now.

Q. That was the first knowledge or intimation that you had that there was any cocaine in it?

A. Yes, sir.

S. R. ROBERTS,
recalled to the stand for further examination.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. I hand you what purports to be a copy of your report to the Medical Examiner of Public Schools of Atlanta, and I will ask you to state whether or not you are the Doctor Roberts who made that report, and look in the first column and if you recall that as being substantially your report of the health of the public school children of Atlanta, state it.

A. You have a list here with my name at the top, and another with Doctor Stevens' name. I can recollect at this time that the figures under my name are approximately the figures included in the report at the close of my work.

Q. Was that the work on which you based your statement the other day that you found only 23 children that were nervous.

A. Yes, sir; and I notice that he only found eight.

Q. I didn't ask you what he found; just asked you what you found. Didn't you report that you found anemia in 200 children?

A. I don't remember.

Q. You said this was approximately correct, and I will stand by that. Now, have you a copy of your report with you?

A. I will see. Yes, my report says 214, which is about the same.

Q. You have what purports to be a copy of your own report with you?

A. Yes, sir.

Q. As to the number of defective children, you reported that out of the 7,907 you examined, how many defective children?

A. 4,236.

Q. Defective children?

A. Yes, sir. Of course, that includes such a thing as decaying teeth.

Q. And of eyes you reported 1,171 were defective?

A. 1,246 here.

Q. And lungs?

A. 87.

Q. Heart?

A. One fifty-one.

Q. You mean one hundred and fifty-one?

A. Yes, sir.

Q. And of the glands?

A. 459.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. What is aenemia?

A. Either deficiency in the kind or deficiency in the quality of blood in the body.

Q. Did you ever hear of that kind of disease resulting from the drinking of Coca-Cola?

A. No, sir.

Q. Do sore eyes result from drinking Coca-Cola?

A. No, sir.

Q. Or impairment of the lungs?

A. No, sir.

Q. How about the heart? Does that—

A. No, sir, it does not.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Don't you know that the medical authorities teach

that the heart is impaired as a result of caffeine usage?

The Court: Before going into that, find out on what ground he made that statement.

The Witness: I made that statement of the examination especially of the one hundred people previously testified about.

Mr. Miller: Mr. Sizer asked the general question of whether this impaired the heart.

The Court: Yes, but before you can go into that, find out whether that opinion of this witness is expressed as the result of his own experience and observation, or from the statements of medical authorities, and if from the statement of medical authorities, you can cross-examine him.

BY MR. MILLER:

Q. I understand your statement to adverse counsel as to the effect of Coca-Cola were based upon your examination of this one hundred people you made the examination of?

A. I said part of it.

Q. Is any part of it based upon medical literature?

A. None whatever.

Mr. Miller: I would like to have his notes filed as Exhibit 1 to his testimony.

The Court: Without objection, that can be done.

Mr. Sizer: What is that?

Mr. Miller: A copy of his examination of the school children.

Mr. Sizer: (After examining) I don't think it is very relevant, but I have no objections to it.

The Court: Without objection, it can be filed.

(The paper referred to was marked as Exhibit 1 to the testimony of Dr. S. R. Roberts, and is in the following words and figures:)

"SUMMARY OF MEDICAL INSPECTION FROM APRIL, 1909, TO JUNE, 1910.

Number children examined	7,907
Number normal	3,671
Number defective	4,236
Per cent. defective	53.5
Number visits to homes, by three nurses	4,043
Number children treated	2,144
Per cent. treated	56
Operations for tonsils and adenoids	421
Number glasses fitted	213
Parents refused treatment	151
Parents promised treatment in vacation	210

Children temporarily dismissed on account of having contagious diseases..... 218

NUMBER AND KIND OF DEFECTS.

Anemia,	214	Adenoids,	1,186
Mal-nutrition,	34	Skin,	90
Parasites,	173	Heart,	151
Seborrhea,	91	Lungs,	87
Eyes,	1,246	Nervous,	26
Glands,	459	Bone,	14
Teeth,	1,957	Ears,	46
Tonsils,	971		

ROBERT J. FORMAD,
recalled for further examination, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Formad, you were examined on a former day of the term?

A. I was.

Q. I will ask you whether or not you have had experience in feeding rabbits drugs, or have seen them fed drugs through a stomach tube, or a rubber tube, such as Doctor Morgan testified was used in feeding some of the rabbits on which you performed an autopsy, and whether or not you have had occasion to examine those same rabbits after they had been fed through a stomach pump?

A. I have.

Q. In the case of rabbits that had received only water or those that received any drugs in so far as the insertion of the tube was concerned, I will ask you whether or not you found any effect deleterious or otherwise, resulting from the insertion of the tube.

Mr. Sizer: I submit that is matter in chief.

Mr. Miller: I submit it is not. They have gone into that fully on cross-examination of our witnesses, and also on the original examination of their witnesses as to what the effect of putting a tube into the stomach would be. They brought that out, not I. I did not inquire about it.

Mr. Sizer: Their witnesses testified about it.

Mr. Miller: They may have asked some of our witnesses about it; I don't know whether they did or not, but on their examination they brought it out that it would be deleterious.

The Court: It is always difficult to tell whether things like that are in rebuttal or not. There was an attempt to establish that the effect was deleterious, and there was nothing to rebut until the claimant introduced its wit-

nesses.

Mr. Sizer: Doctor Morgan stated he killed six rabbits.

The Court: That was subsequently in the process; that was a different thing. I think the examination is proper, though. You may proceed, Mr. Miller.

The Witness: If the tube is not too much of the caliber of the trachea or windpipe, and if the esophagus into which it is inserted does not distend the walls of the tube, it may be inserted with sufficient care without any injurious effects.

Q. Now, in those rabbits where you held the autopsy about which you testified in chief, did you find any deleterious effects or results, or any effects whatsoever, I should say, from the insertion of this tube, anything that was attributable to the insertion of the tube?

A. I did not.

Q. State whether or not in the examination of the brain structure for chromotolysis, the chromotolysis may be overlooked unless what is known as Nissl's test is resorted to, that is the staining or coloring?

Mr. Sizer: I submit that question of chromotolysis was brought out on original examination of Mr. Miller's witnesses, and fully covered on their cross-examination, and fully covered by our witnesses, and I submit that this is going into matters in chief again.

Mr. Miller: I am simply asking whether a man can use a miscroscope and not discover this disease without resorting to the staining tests.

The Court: I don't remember that specific question.

Mr. Miller: And in that connection, they went into the question of chromotolysis in these rabbits, what it affected.

Mr. Miller: I am not asking about that now.

The Court: The question is leading and you are sensitive to leading questions, Mr. Miller, but what is the bearing of the question?

Mr. Miller: I will put it in another form. I want to show that a microscopical examination might be made and unless the Nissl test was resorted to, chromotolysis would not be discovered.

The Court: But what is the bearing of that on the case?

Mr. Miller: Doctor Vaughan and certain other people have testified in a general way to a microscopical examination.

The Court: Is it going to the weight of the effect of the examination of the different witnesses?

Mr. Miller: Yes.

The Court: On that, it is competent, I think.

BY MR. MILLER:

Q. I ask you, Doctor, what is necessary in order to develop or discover the disease of the brain or the trouble known as chromotolysis?

A. In order to see the presence or the absence, or rather, the existence of chromotolysis, they have to have to use stains which are specific for that process. In other words, chromotolysis is a condition depending upon the diminution or the reduction of certain granules which have an affinity to aniline dyes only, and if we were to employ other dyes than aniline dyes we shall not be able to see the reduction of these granules.

Mr. Sizer: As I recall, the witness is simply stating what he stated on his former examination.

The Court: As far as he has gone, it has a very familiar sound, but I don't think he has come to the question specifically asked him.

BY MR. MILLER:

Q. State whether or not that disease of chromotolysis may be discovered by the use of the microscope alone without the dye.

A. It could not be seen or observed unless the particular method of Nissl, the aniline reaction, is used.

Q. That means the use of an aniline dye in connection with the microscope?

A. Yes, sir.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You mean to say if you put a tube down a rabbit's throat and in his stomach and then pour thick syrup down through that, an ounce every day, and keep him for sixty days with a tube in that condition, that he will thrive and get along just as well as if he didn't have the tube?

A. I simply stated that I did not find any effects produced by the tube.

Q. Do you mean to say in your opinion a rabbit under those conditions will thrive and get along as well as if you leave him in a natural condition to eat his natural food?

A. No, sir. If a rabbit is left at liberty and takes his food under natural conditions, he may thrive better.

Q. If you put him in a cage and let him eat food in the way nature intended him to eat it, won't he do better than if you put a tube down in his stomach and feed him in that way?

Mr. Miller: I object to that question. There is no ques-

tion that any food was given to any rabbit through a tube.

The Court: I will put that question: Is it your opinion, Doctor, that if the rabbit on which the experiment was conducted were regularly fed, does it make any difference to the health of the rabbit whether this additional material is given in the form that he can swallow it, as in the ordinary process of feeding, or does the feeding or administering by tube—does the effect of the administration of this material without the addition of any additional matter through a tube have any effect on him?

The Witness: He could exist and thrive better if he had taken the food in his natural way, but the mere fact that the food or drug or substance has been given with a tube carefully inserted, will not damage his digestive tract in any appreciable amount.

Q. What did you put that tube in his throat for, anyway?

A. Well, for the administration of the substance with which the experiments were made.

Q. And you put the tube in the throat to pour the substance through the tube because you can't get the animal to take it any other way?

A. Yes; the animal would resent the taking of anything but its normal food.

Q. And you say now that it won't affect digestion, the digestive processes, a foreign substance taken into the stomach of animal that objects to taking it?

A. I am not considering the digestive process from a physiological standpoint.

Q. But I am asking you about that. Would it affect the digestive processes to force food into the stomach of an animal through a rubber tube, the kind of a food that he objects to taking?

A. That is the physiological action rather than the pathological.

Q. In other words, you are not able to answer?

A. I do not care to express an opinion on that now.

Q. Now, Doctor, chromotolysis may result from fright, may it not?

A. That depends on what the amount of fright is.

Q. Yes?

A. The mere scaring or frightening of an animal would scarcely produce it.

Q. Do you think you could scare an animal by putting a tube down in its throat enough to give him chromotolysis or produce it?

A. But the animal has been accustomed to that procedure and the drug was put in the first time it was in-

serted. The animal would get accustomed to that procedure.

Q. You don't know anything about the psychic effect on a rabbit's mind of the putting of that tube down his throat?

A. No, sir.

Q. You don't know how bad he might be scared?

A. Animals are handled a great deal in experimental work and they become used to being handled, gentle, of course.

Q. Would you think if you put a tube down a rabbit's throat long enough he might get used to it and it won't scare him?

A. He will; yes, sir.

Q. It scares him the first time you do it?

A. Yes, sir.

Q. Would that produce chromotolysis?

A. If you pick up an animal, the first time it gets scared, too.

Q. But putting a tube down his throat, that would scare him and that might produce chromotolysis?

A. I doubt it.

Q. Do you know?

A. No, sir; I do not.

Mr. Sizer: Then stand aside; come down.

Mr. Miller: Hold on.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Formad, if the animal, while undergoing the experiment with the tube, in taking the Coca-Cola syrup or drug, or whatever you are experimenting with, continues to eat his normal amount of food in a normal way, does that not indicate that the digestive apparatus of the animal has not been interfered with?

A. It leads us to conclude that the normal functions are going on in a normal manner.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor, suppose you would put a tube down a man's throat and poke hay down that tube into his stomach, what do you think would be the effect of that tube on the man?

Mr. Miller: I object to that. He has only testified in respect to rabbits.

Mr. Sizer: This is in rebuttal to his testimony about pouring syrup into the stomach with a tube.

Mr. Miller: But that is not—

The Court: (Interrupting) I think it is proper cross-examination.

Mr. Miller: I object to the use of the term "hay."

Mr. Sizer: Well, it is a well-known substance.

The Court: Proceed.

The Witness: If you would insert in the tube any coarse material, whether it is hay or any other substance, that coarse material might irritate the mucous membrane.

BY MR. SIZER:

Q. And the man's digestive apparatus, not being accustomed to the assimilation of hay, would not that have some affect on his stomach?

Mr. Miller: I object to that question because he is not a witness as to that subject, your Honor.

The Court: I don't think—

Mr. Miller: (Interrupting) And because it is leading.

The Court: I don't think it is leading, but I think it is a foreign matter. You are getting on to the affects of a foreign substance.

Mr. Sizer: Well, syrup is foreign to the animal.

The Court: As to the tube affect only, that was asked.

BY MR. SIZER:

Q. I will ask you this question: If it is not true that the brain cells are breaking down and disappearing all the time in the ordinary processes of life.

A. A certain number of cells in all parts of the body may break down, but that condition would not be in a sufficient amount as we find in chromotolysis proper.

Q. Now, then, would not that breaking down process give an indication of chromotolysis in some of these cells?

A. It would take place in such inappreciable amounts that it would be difficult to determine.

Q. Now, Doctor, how do you know it would take place in very inappreciable amounts? This was a very refined test you referred to in your examination in chief, was it not, this Nissl's test—I believe that was the test.

A. Nissl's test—I have used that test for over fifteen years in demonstrating to my classes the normal appearance of the Nissl's granules, when there is no chromotolysis present.

Q. You are familiar with Stewart's Manual of Physiology, are you not?

A. In a general way. I am not a physiologist.

Q. That is a standard authority, is it?

A. Yes, I believe it is.

Q. Well, I want to read you this with respect to chromotolysis—

The Court: Find out what his opinion on direct examination was based on before you read him any authorities.

BY MR. SIZER:

Q. Now, is your opinion given in response to questions on direct examination as to the existence of chromotolysis, the tests by which it can be determined, and the causes to which it may be due, based on the reading of the literature?

A. It is largely based on my personal experience and partially upon the reading of literature.

Q. Partly on literature?

A. Yes, sir.

Q. Now, I will read you this—

Mr. Miller: I object to that, to any physiological book. He said he was not a physiologist, but a pathologist, pure and simple—and he did not qualify in trying to give us an opinion in chief on that.

Mr. Sizer: I do not know the exact distinction between a physiologist and a pathologist, but I submit—

The Court: Have you any specific authorities on the question of chromotolysis and the tests to be used? If you have, you may submit it.

Mr. Sizer: This refers now to the causes that may produce chromotolysis and I want to read him this clause.

The Court: He was not examined in chief on those clauses, as I recall, and certainly not in this re-examination. The only question is as to the test, the affect of the test.

Mr. Sizer: The purpose of his examination was to intimate or lead us to the inference that the presence of chromotolysis might be due to the fact that they were giving rabbits Coca-Cola.

Mr. Miller: Well—

The Court: (Interrupting) But, as I understand it, the witnesses for the claimant did not apply the proper test. That was the point; it was attacking the weight of their tests on that point, if they used the Nissl test—

The Witness: Yes, the Nissl test.

Mr. Sizer: Well, if his testimony is limited to that point we do not care to go into it.

The Court: That is the way the Court understood and the point on which it was admitted.

Mr. Miller: Well, unless you gentlemen wish to recall Doctor Formad, I would like to excuse him to catch a train.

Mr. Sizer: Let him go.
(Witness excused.)

DR. WILLIAM SALANT,
recalled in rebuttal, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Salant—

The Court: Before we proceed further, it seems to me there should be made a record in this case of the agreement made by counsel yesterday in the presence of the Court in reference to the samples of Merchandise No. 5. It was agreed and I direct the stenographer to state it was, on yesterday agreed by counsel for the Government and the counsel of the claimant, in the presence of the Court, after court adjourned, that the representatives of each side might take samples of Merchandise No. 5 from the receptacle filed as an exhibit to the evidence of—I forget.

Mr. Sizer: Doctor Mallet.

The Court: To the evidence of Doctor Mallet, for the purposes of examination.

Mr. Miller: And that was done by each side.

The Court: I wanted to make a note of it and have it appear in the record. You may proceed.

BY MR. MILLER:

Q. Doctor Salant, state what was the percentage or solution of caffeine which you used in the administration of caffeine to these rabbits in which you detected sugar in the urine.

Mr. Sizer: I object to that; that is examination in chief.

Mr. Miller: That is brought out in response to the inquiry of their witnesses as to whether or not there is a difference in affect of caffeine when taken or administered by mouth or subcutaneously injected, and I simply propose to prove by him what the solution was—

The Court: Well, I think it is a matter in chief, but I think the matter has been inadvertently omitted and it is in the discretion of the Court to permit it. I have not ruled very closely—I never do on these matters in examination in chief—and I think counsel has not purposely withheld anything. I will allow a rejoinder on the part of the claimant to that.

Mr. Miller: Just read him the question.

(Question read, as follows: "Doctor Salant, state what

was the percentage or solution of caffeine which you used in the administration of caffeine to these rabbits in which you detected sugar in the urine?")

A. Two per cent. aqueous solution. Two grams of caffeine to one hundred cubic centimeters of water.

BY MR. MILLER:

Q. State whether or not xanthine as such enters into the chemical anatomy of the cell of the human.

A. I should say not. It is a product of the processes of metabolism and I would not consider it as a part and parcel of the cell, although it may be found right straight along in the cell.

Q. Now, I will get you to state if you heard the examination of Doctor Haines as to the behavior of the pigs to which he administered one-sixtieth of a grain of caffeine, or one-fiftieth of a grain of caffeine, whatever it was. The pigs, in the first instance.

A. If I recall it accurately, he showed some symptoms of nervousness, as he called it—

Q. Now, assuming that the caffeine was administered, as he states, I will ask you to state from your experience what that restlessness would be attributed to.

A. I cannot see any other cause than the caffeine.

Q. I will get you to state whether or not caffeine is of chemical constitution.

A. I didn't understand the question.

Q. I will get you to state whether or not caffeine is of chemical constitution.

Mr. Sizer: What did he say?

The Stenographer: He said: "I didn't understand the question."

Mr. Sizer: What was the question?

(Thereupon the question was read, as follows: "I will get you to state whether or not caffeine is of chemical constitution.")

The Witness: I do not understand that; that is meaningless to me.

BY MR. MILLER:

Q. The question I have in mind is based on the definition as given by Doctor Vaughan, and that was as to what a poison was.

A. Yes.

Q. And that was that it was a substance that when taken in the body, on account of its chemical constitution does so and so, and I ask you whether or not caffeine is a chemical constitution.

A. Well, caffeine is a chemical; yes.

Q. What did you say?

A. Caffeine is a chemical substance, if that is what you mean to ask.

Q. Now, based on your reading, observation and experiments, state whether or not the muscles of the human work more smoothly or more effectively after administration of caffeine.

A. I do not know of any reliable experimental data.

Mr. Sizer: I object to that. This witness has not shown, in the first place, that he has ever made any experiments on human beings, and has not qualified himself to testify as to that.

Mr. Miller: He qualified in chief that he had made experiments upon animals—he does not qualify now.

The Court: Experiments upon human beings?

Mr. Miller: No; on animals.

The Court: You are asking him about experiments on human beings.

Mr. Miller: I asked him whether, based on his reading, experimentation or observation, there is any foundation in his opinion for the statement that the muscles work more smoothly, or effectively, after the administration of caffeine. Now, I do not think it has been disputed by anybody that animals are resorted to for experimentation as to effects of caffeine on humanity, and of course in part he is reasoning by analogy when it comes to forming an answer, and I am asking this man who has studied its effects for over two years and nothing else, and basing his opinion in part on what he has read, on literature.

The Court: Well, that reading of literature—that is very general, the way you have asked him. Ask him to state the kind of literature.

BY MR. MILLER:

Q. I will confine that to medical and scientific literature, I will say scientific literature on the subject.

A. I do not know of any reliable information indicating that the taking of caffeine improves the quality of muscular work or as to the smoothness of the muscular work.

The Court: That was not the question that was asked you, but your opinion based on that information and experiments and reading and literature—that was what was.

The Witness: I have no reason to suppose that it does.

Mr. Sizer: Now, I move to exclude that answer, your Honor.

The Court: I do. It does not suppose one way or another, and it does not indicate anything.

BY MR. MILLER:

Q. I will ask you, then, again to state your opinion based on your experiments and reading of scientific literature on the subject of caffeine and its affect on the human system, whether the muscles work more smoothly and effectively after the administration of caffeine.

A. I do not know whether they do work more smoothly or not.

Q. Have you ever seen or known of a case where they did?

Mr. Sizer: I object. The witness says he does not know; he is very candid about it.

Mr. Miller: I submit I had a right to follow the line of testimony yesterday as to what came under his observation.

The Court: Yes. If the witness said he had known he could give it, but he says he has not any opinion.

BY MR. MILLER:

Q. Do I understand you, Doctor Salant, that based on your reading and observation you have no opinion on the subject?

Mr. Sizer: I object to counsel cross-examining his own witness.

The Court: The witness has stated that he did not know about it and had no opinion to express. That is the substance of his examination as the Court understood it.

BY MR. MILLER:

Q. I will ask you this question, if you have seen, read or known of any scientific literature dealing with that subject.

Mr. Sizer: I object to that.

The Court: That is immaterial. If he has not read it, he is not qualified to express an opinion; if he has read it and is not prepared to express an opinion, it is immaterial to the case also.

BY MR. MILLER:

Q. Have you not performed any experiments with a view of ascertaining how that is?

A. I have not.

Q. You have not performed any?

A. I have not performed any experiments on that point.

Q. Now, I will ask you whether or not urea is a normal constituent of the human body.

Mr. Sizer: That is the most familiar sound I have heard this morning. That has been gone into by every

expert on the stand, as to whether urea was a normal constituent of the human body.

Mr. Miller: I say again that I did not ask this witness or any of my witnesses such a question. I do not deny that you asked yours.

The Court: What is that to rebut?

Mr. Miller: This is to rebut the answer of one of their witnesses who said that caffeine was not a poison because it was broken up into xanthine and that xanthine was a normal constituent of the body.

The Court: You have not asked him whether xanthine was a normal constituent of the body.

Mr. Miller: No, but I am asking about the urea, and they were permitted to ask about certain other things, and even read from foreign to say whether they were poisons, and I am trying to follow the ruling made in that regard.

The Court: I don't see what you are referring to. The point is to contradict the witnesses who stated that xanthine was a normal constituen of the body.

Mr. Miller: That is what I understood Doctor Vaughan to state.

The Court: You may ask this witness, then, whether xanthine is a normal constituent of the body.

Mr. Sizer: And he has already asked him.

Mr. Miller: I asked him if it were a normal constituent of the cell, and he said it was not.

BY MR. MILLER:

Q. State whether urea is formed from xanthine, or what xanthine forms, that is, the xanthines in the body, what are they converted into?

A. Uric acid.

Q. By what process?

A. By process of oxydization, by adding one more molecure of oxygen.

Q. State whether or not they are brought in contact with the urea?

A. What is brought in contact with urea?

Q. Whether or not they are transformed or converted into urea?

A. It may be, I do not know; it is not known definitely.

Q. For the purpose of getting this question into the record, I want to ask this witness, who is a pharmacologist, whether urea is a poison or not.

The Court: And the question is overruled and the answer excluded. That might be matter in chief, but is not proper on rebuttal.

BY MR. MILLER:

Q. Now, as to the effects of caffeine stimulation, if there is any chart or representation on the board that was put in evidence by any of the witnesses which shows the effects of it, and in your opinion shows whether or not it is beneficial or deleterious, just take the chart and point out what it shows with respect to depression and stimulation and what your opinion is based thereon.

A. On that chart (pointing to chart on blackboard) appear the red line, which shows the author's idea of the effect of caffeine on the muscles, that is, the work performed by the muscles under the use of caffeine. The second line, the green line, is the work the muscle performs without caffeine, or the control, so to speak. Assuming this author's view, it means that the red line represents the work done by the caffeinized muscle and where it crosses here, it means less work done by the normal muscle. In other words, as compared with the normal muscle, there is a definite distinct depression, lasting for some time, but they finally run together. That is what those two lines mean.

Q. Assuming that chart to be true and correct, state whether or not depression follows the stimulation.

A. If this chart is true, it certainly does. It shows nothing else, to my mind.

Q. State whether or not you have had occasion to observe the effects of the administration of caffeine solution, or other drugs, on rabbits through a rubber tube, and if so, what the effect is of the insertion of the tube on the rabbit.

A. I have administered salt solution by mouth through a rubber tube to a rabbit for fourteen or fifteen days, and as far as I could see, there was no effect whatever. It don't show any symptoms of nervousness or irritability or any difference in weight. Then I also performed experiments with other drugs. I could mention the drug, but I prefer not to.

The Court: You need not. The only question is as to the effect of the tube.

A. And they were never killed by the tube.

Q. In your opinion, in the administration of these drugs by tube, is there a harmful result to the anatomy of the rabbit, that is, its insides?

Mr. Sizer: I object to that question. He has already stated his observations as to the effect. Now, Mr. Miller asked him whether it was harmful or not.

The Court: He has already stated that he saw no effect.

BY MR. MILLER:

Q. To probably how many rabbits have you administered substances through rubber tubes?

A. Not caffeine, but substances altogether?

Q. Substances altogether.

A. Between fifty and sixty in the last year, and I don't know how many before that. That was the amount in the last year.

Q. Now, if a drug like caffeine, or any other drug, would be administered to a pig by taking the pig up and squeezing him at or near the throat and dropping the medicine into his mouth, state whether or not in your opinion that would be a proper method of experimentation, and if not, tell why not.

A. I do not regard it as an accurate method of administration.

Q. Why not?

A. You really do not know whether it reaches the stomach or not. That is the reason I made my experiments with a tube; that is, I administered the drug by a stomach tube; I know it gets there.

Q. From your experience and observation of others in the administration of aqueous solutions, I will ask you whether or not the tube is resorted to?

A. Yes, a great many people I know experiment in that way—competent people.

Q. What effect does the administration of caffeine have on dogs or guinea pigs as to inducing thirst?

Mr. Sizer: That don't sound like rebuttal testimony to me.

The Court: I do not see that it is in rebuttal.

Mr. Miller: They brought out in one or two instances that the pigs had increased in weight, and I want to show that if they drink more water, more of it became absorbed in the cell, and as a consequence, they might take on weight.

The Court: You can proceed.

The Witness: I know that after the administration of caffeine they become very thirsty and they drink a great deal of water.

BY MR. MILLER:

Q. Now, if an animal had his thirst increased in that way and he increased in weight, would that or not prove that the solid flesh or the healthy animal had been increased?

A. Not necessarily so. That would depend upon many factors.

Q. What other factors do you speak of?

A. It would depend on how much he would urinate, how much he would perspire, the condition of his alimentary canal, and also whether or not the flow of bile and other secretions of the stomach and intestines were increased. There are any number of factors.

Q. When you administered caffeine through a tube to rabbits, or when you inject it, I will ask you whether or not there was any difference in qualitative effect.

A. None whatever, absolutely none as far as human experience could show.

Mr. Sizer: I think that was gone over in the examination in chief.

Mr. Miller: I submit it was not. I certainly did not ask him about it in chief.

Mr. Sizer: The mere fact that he didn't ask a certain question does not make it material or competent on rebuttal.

The Court: I will allow the question and answer to stand.

BY MR. MILLER:

Q. Now, as respects rabbits and man, what is the difference between the two as to the consumption of herbs or herb-life. What is natural as to the one and as to the other?

The Court: I think the jury understand that.

BY MR. MILLER:

Q. I will ask you whether or not a substance taken from an herb like caffeine would be, in your opinion, less deleterious to man than to a rabbit, and if not, why not?

Mr. Sizer: That matter was all gone over in chief.

Mr. Hirsch: Oh, let him answer.

Mr. Miller: I am sure I did not ask this witness or any other witness about it. I had read the testimony to see.

The Court: There was an attack made on the experiments on the ground of the difference in the feeding habits of animal and man by witnesses for the claimant, and I take it that the Government wants to rebut that. Is that it?

Mr. Miller: Yes.

The Court: Proceed.

The Witness: What is meant by that, I suppose, is that deleterious tolerance of man and also of the animals to certain drugs, especially caffeine, in this case. It is pretty well known that lower animals are far more resistent to alkaloids and drugs of vegetable origin than human beings. We know, for example, that some animals, the hedgehog, is immune to strychnine.

Mr. Sizer: We object to the hedgehog. He has not been brought in here before.

The Court: There are too many points about that for us to go into.

BY MR. MILLER:

Q. I will ask you if there is, in your opinion, any reason to suppose that the rabbit would be less tolerant of caffeine or any substance that had a vegetable origin than man would be, and if not, tell why.

Mr. Sizer: I object to that.

The Court: The objection is sustained.

Mr. Miller: He supposes—

Mr. Sizer: I object to any supposes.

The Court: The witness has given his opinion —

Mr. Miller: I am not going to ask anything about any supposition.

Mr. Sizer: I want to submit this further objection as to the respective tolerance of rabbits, guinea pigs, man, as that was gone into by several witnesses on behalf of the Government and they testified that they based their testimony largely on the Allard and Zenetz cases, indicating the lethal dose, and now they are going over the same ground.

The Court: The general opinion as to the respective tolerance of rabbits and other animals to caffeine in proportion to man is a matter in chief and it was gone into.

Mr. Miller: But I am not asking about that.

The Court: But the specific objection to the test, on the ground that the difference of digestion habit of man and other animals with reference to food, may be gone into, because there was an attack made on that very ground by one or more of claimant's witnesses, but it would be limited to the witness' opinion as to the value of the tests with rabbits and other similar animals, as based on the difference in the regular diet of the animals and the diet of man. It should not be embraced in a general question.

BY MR. MILLER:

Q. Now, based on the general habits of the rabbit—

The Court: In reference to diet.

Q. —in reference to diet, state whether or not, because they do not eat meat, there is any reason, in your opinion, why they would be able to take care of caffeine for that reason, or whether it would be a tolerant substance to their diet.

A. Being herbivorous animals—

The Court: The objection was made because the rabbits are vegetarians, and man was called an omnivorous

animal, that the tests with caffeine on a rabbit would be misleading. Now, you may ask this witness whether there is anything in that difference of diet, in his opinion, to make the tests inaccurate.

Mr. Sizer: That is not exactly our objection, but it was based on the fact that caffeine is not an article of the animal's ordinary diet.

The Court: That has been proven several times.

BY MR. MILLER:

Q. Now, based on the customary diet of animals in their normal condition, state whether or not there is, in your opinion, any reason or support for the ground that because they are herbivorous animals an experiment on them with caffeine would be misleading as respects humanity, and if not, why not?

A. I do not consider it misleading.

Q. Why not?

A. Unless by misleading is meant that they take larger doses, they are more tolerant than man on account of their habits and ways of life.

Q. Why habits?

A. They are herbivorous animals and must of necessity take in poisons of a vegetable origin, thereby coming more or less immune, and can take larger quantities.

Q. Is caffeine or not of vegetable origin?

A. Certainly.

Q. I will ask you to state with respect to metabolism whether or not the same results obtain as to body protein metabolism where persons have brain disease, as compared with those who have not?

Mr. Sizer: I do not know whether that was gone into in chief or not; if it was, I object to it.

The Court: I don't see to what it applies.

Mr. Miller: It was shown by Doctor Emerson, I think, that he performed some experiments on certain persons for the purpose of ascertaining as to protein metabolism. Now, I am trying to show that these same results might have obtained, so far as protein metabolism was concerned, even though the brain or heart might be deranged as the result of metabolism.

The Court: Did Doctor Emerson express any opinion on protein metabolism — did he show there were any changes in the brain?

Mr. Miller: No, sir, he did not kill the man to see whether there were any changes.

The Court: Then it don't rebut anything.

Mr. Miller: No, but I asked him on cross-examination

whether that would show—I think I did. I can't carry everything in my head, but I think I did.

The Court: I don't know of anybody who carries any more in their head than you do.

Mr. Miller: Your Honor overwhelms me with the compliment. I am not anything but a-b-c-darian in this case yet.

BY MR. MILLER:

Q. Now, I will ask you whether or not you have read the testimony of Doctor Wesener, and whether you heard it given in open court?

A. Yes, sir; I have read it and heard it both.

Q. If the experiments of Doctor Wesener were open to any objection from a scientific standpoint, first as to the matter of the control animals, I will ask you to state why.

A. The way to carry out an experiment is to control each individual animal, that is to say, if you give him a substance, caffeine in this case, you should handle him as near as possible before you give him the drug as you do when you give him the drug, and you may check it up more by having a group of other animals similarly treated but not receiving caffeine. That would be an adequate way of checking up or controlling the experiment with the substance. The animal should be observed very closely before, during, and if possible, after the giving of the drug. Any other method is positively inadequate.

Q. State whether or not in your opinion the experiments as conducted and reported by Doctor Wesener were adequate or accurate tests as to the effects of caffeine on the stomach of the rabbit or on the reaction of the rabbit.

The Court: I intend to limit the criticism of the method employed — the logical bearing of these experiments, on the case, is for the jury and not for the witness. The question is a little too broad and it might lead to that result.

BY MR. MILLER:

Q. If Doctor Wesener's experiments were open to any other criticism that is objectionable —

The Court: Open to objection in giving resultant facts for which they are offered in evidence.

BY MR. MILLER:

Q. If they are open to objection and giving resultant facts which he testified to, then testify what they were.

A. Well, the objection to Doctor Wesener's experiments is that they were entirely too few; he ought to have performed three experiments with caffeine so better results could be obtained as results might very easily be ascribed

to chance.

The Court: What do you mean by that ——

The Witness: To chance.

Mr. Sizer: That is a mere matter of opinion; it is not an expert question — the jury can see as well as he can ——

The Court: I don't know if he bases his opinion on the usual and customary experiments of this sort as to number, if there is a standard of that sort it would be competent, the custom scientifically.

BY MR. MILLER:

Q. Are you basing that opinion you have given as to the number of his experiments being too few, Doctor, — or what are you basing that statement on?

A. I base it wholly on my own experience because the main feature about experiments with caffeine that struck me most forcibly is the difference of individuals in their resistance to the drug. There are so many features which enter into consideration with a few animals that means practically nothing.

Mr. Hirsch: Now, he says "individuals." He says animals were experimented on and nothing except the lower animals — now he is criticising experiments on lower animals, and then he has gone to individuals.

The Witness: I mean individual animals, animal individuals.

The Court: Yes, he means that.

BY MR. MILLER:

Q. State any other criticism, that is, any other opinions that suggest themselves to you with respect to the results and effects to which Doctor Wesener testified that would lead you to the conclusion that the method of administration was either not scientific, and inadequate from a scientific standpoint.

A. I covered that this morning in regard to the method of administration. I do not suppose it is necessary to repeat it.

Q. That was in the case of Doctor Haines' pigs?

A. Yes, sir.

Q. State whether or not young animals like those that Doctor Wesener experimented with were or not, the majority, three or four, whatever it was — at any rate, whatever the number was, would be in a growing state ——

Mr. Hirsch (Interrupting): There is no evidence to show that the animals he experimented on were young animals.

Mr. Miller: I mean to limit to the number ——

The Court (Interrupting): If there is, the jury will judicially know that a young animal is gaining flesh without proof.

RECROSS-EXAMINATION,
BY MR. HIRSCH:

Q. What solution was that you said you gave of caffeine?

A. Two grams to one hundred cubic centimeters.

Q. And if you put in another particle of caffeine in that solution it would have gone out of solution?

A. Yes, sir, exactly, that would be the temperature ——

Q. The highest concentration?

A. Yes, sir, some temperature is all ——

Q. What experiments have you performed to show that xanthine is reduced to uric acid and uric acid to urea?

A. Well, I didn't say I had performed any experiments with xanthine.

The Court: Didn't this witness say he didn't know anything about that?

Mr. Hirsch: No, he went into it.

The Court: But when he got to the uric acid feature of it, I thought he said he didn't know.

Mr. Hirsch: The witness said that ——

The Witness: Xanthine is oxydized to uric acid.

BY MR. HIRSCH:

Q. Xanthine is oxydized to uric acid and none of it to urea?

A. It is doubtful if any.

Q. You don't know?

A. No, sir.

Q. Taking the chart that you refer to ——

A. Yes, sir.

Q. Does not that chart show that the average work done by the muscle that was put in caffeine, the total done by the muscle put in caffeine, was greater than the total work done by the muscle not put in caffeine?

A. Yes, the total work.

The Court: That chart as to the muscle being put in caffeine, did I admit that?

Mr. Sizer: No, that was not ——

The Court: I excluded everything about the direct action of caffeine on the muscle.

Mr. Sizer: This was not in respect to the direct application.

The Court: He said a muscle put in caffeine. I thought I excluded everything of that sort.

Mr. Sizer: That was this experiment that Doctor Wood

— in which he had given caffeine to a frog and then tied or bound one of the muscles so that caffeine could not get into it and could come up into the other.

Mr. Hirsch: Yes.

The Court: All right.

BY MR. HIRSCH:

Q. Besides that, Doctor, does not that chart show that the caffeine muscle was in as good condition at the end of the experiment as the muscle that had not been given caffeine?

A. Yes. I would like to correct that; you mean, ultimately?

Q. Well ——

A. What do you mean by the end of the experiment — when it ended?

The Court: Yes, when it ended there.

Mr. Hirsch: Yes.

The Witness: Yes, sir.

BY MR. HIRSCH:

Q. Did you ever feed rabbits, through a tube, milk?

A. Sir?

Q. I say, did you ever feed rabbits or use a tube in feeding milk to rabbits and note the effects?

A. I did not.

Q. You say the reason Doctor Vaughan's experiments and Doctor Haines' experiments were faulty because you could not tell where the caffeine went that was given by way of mouth without the tube ——

A. You could not tell whether all the caffeine reached the stomach.

Q. Where would it go to if it didn't reach the stomach?

A. They may spit it out.

Q. You say they may spit it out?

A. No, sir, I don't know ——

Q. Do you say that guinea pigs and rabbits spit?

A. No, I used that as a common expression. I would like to have an opportunity to explain that.

Q. All right.

A. It might very easily, the local application of caffeine solution might very easily and very frequently and in many cases cause increased salivation — I mean, an increase of saliva, which might ooze out at the mouth, that is what I mean by spitting.

Q. Do you think feeding rabbits with caffeine as Doctor Vaughan and Doctor Haines said they fed them, that all of the caffeine did not go into the stomach and get into

the blood?

A. I did not say all of it did not. I don't know how much of it would not. Possibly some of it did not reach the stomach.

Q. Is it a possibility?

A. Yes, sir.

Q. Now, Doctor, you stated in reference to tolerance that it is pretty well known that the lower animals are more resistant than man. How is it pretty well known?

A. Resistant as to what?

Q. As to caffeine — we are not talking about anything else now.

The Court: I meant to exclude everything except the interrogation as to the diets.

BY MR. HIRSCH:

Q. Isn't it a fact that caffeine is more closely related to meat than to ordinary diet taken by a rabbit?

A. In what way?

Q. The xanthine bodies.

A. Caffeine is not xanthine.

Q. It is trimethylxanthine.

A. Yes, sir, but it is not xanthine.

Q. Is it more closely related to meat?

A. Yes, sir.

Q. Than to food ordinarily taken by rabbits and guinea pigs?

A. Yes, sir.

Q. How many experiments did you perform to find out as to the demethylization of caffeine?

A. I don't remember.

Q. Don't you remember how many rabbits you experimented on?

A. For what?

Q. For the purpose of finding out about the demethylization of caffeine.

A. I didn't say that I performed any to find out about the demethylization — I didn't say that I did that by injecting it into the rabbits. I never made such a statement.

Mr. Sizer: Did your Honor say we could not go into the question of the tolerance proposition that the witness testified about?

The Court: I excluded his answer, or I intended to exclude it in so far as it was brought out on re-examination to meet your objection rising out of the diet.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. I will get you to state whether or not trimethyl-

xanthine occurs in many forms of plant life.

A. Yes, sir.

Q. Trimethylxanthine?

A. Yes, sir.

Q. It occurs in many forms of plant life?

A. Yes, sir.

Mr. Miller: Now, then, there is one question that I perhaps should have asked on his direct examination, as to the experiment of Doctor Wood, and I overlooked it, and that is, when caffeine was given by Doctor Wood, in what kind of a solution was it given and how in your opinion should it have been given in order to have had a determinative or accurate test?

A. It was given dissolved in water and injected in solution. It should have been dissolved in a physiological salt solution.

Q. State whether or not that salt solution, as you term it, is the usual and customary one for making experiments of that kind.

A. That is the usual and proper way to do it.

Q. And why is that, Doctor Salant?

A. Because if the solution injected is hypertonic, it has not got the same thickness as the blood, it will cause a destruction of blood cells — as distilled water, for example, injected directly into the blood will cause a destruction of blood vessels, technically known as hemolysis.

Q. Is caffeine as such ever a meat constituent?

A. No, sir.

Q. Is it or not a plant constituent?

A. Yes, sir.

Q. In many forms of plant life?

A. Yes, sir, it is.

Q. State whether or not it is always a constituent of plant life.

A. Of certain plants; yes, sir.

RECROSS EXAMINATION,
BY MR. HIRSCH:

Q. Does caffeine exist in any plant eaten by the rabbit at all?

A. I know it is in some plants, but I can't answer that question.

Q. Doctor, with respect to this injection of a salt solution: Suppose you saturated the salt solution?

A. Saturated one?

Q. Yes.

A. It will affect very seriously the blood corpuscles. I can answer you more accurately; it will make the blood

corpuscles shrink instead of swell.

Q. Depending upon the degree of the salt solution?

A. Yes, sir.

Q. And the effect upon the blood?

A. I answered you and I cannot answer you any more.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. When you spoke of the normal salt solution — do you have reference to this intense kind that Mr. Hirsch speaks of?

A. I meant an eight-tenths of a per cent. of salt solution.

Q. What kind of effect does the solution have on the blood cells?

A. It keeps the cells in their natural condition — that is why we call it the physiological salt solution.

Mr. Miller: Is Doctor Wert in the house?

Mr. Sizer: Yes.

Mr. Miller: I will ask Doctor Wert to come around.

(Witness excused.)

DR. B. S. WERT,
recalled for further examination, testified as follows:

RE-CROSS EXAMINATION,
BY MR. MILLER:

Q. Doctor Wert, have you or not been called on to treat patients who were afflicted or addicted as a result of Coca-Cola, taking the history into consideration as a part of your statement on which you base your opinion?

A. Have I been called to treat ——

Q. Have you been called to prescribe for men who used Coca-Cola?

A. Yes, sir, there have been cases.

Q. Have you been called to prescribe for and have you forbid the use of Coca-Cola?

A. Yes, sir; there have been cases that I have forbid its use.

Q. State whether or not some of these were children.

A. Why, I don't remember of having been called to treat children. I frequently advise parents not to give children coffee, tea or Coca-Cola.

Q. And why is that?

A. Well, I have thought — I thought that it made them nervous, to some extent.

Q. You don't think that was beneficial to health, do you?

A. Well, I base my opinion on this, Mr. Miller: That a child that would take a glass of Coca-Cola or would drink a cup of coffee, he would get a great deal more caffeine in proportion than an adult would, taking it weight for weight, — or age for age.

REDIRECT EXAMINATION,
BY MR. SIZER:

Q. These cases, Doctor, are cases in which you were called on to treat persons in some diseases or illness?

A. Yes, sir; sure.

Mr. Miller: I object to that.

The Court: It is sustained.

BY MR. SIZER:

Q. Were you ever called on to treat or prescribe for children who were not sick?

A. No, sir, who did not think they were sick.

Q. You frequently when you were called on to prescribe for children or the sick, you forbid the use of various articles you would not forbid the use of to well persons?

A. That is true.

(Witness excused.)

Mr. Miller: Now, Mr. Sizer, are you willing to admit that Coca-Cola did contain cocaine back in 1902?

Mr. Sizer: We will admit just what Judge Candler testified about it.

Mr. Miller: Then we will call Doctor Crampton.

DR. CHARLES A. CRAMPTON,
called as a witness in rebuttal herein, of lawful age, being first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Crampton, what is your age?

A. Fifty-three.

Q. Where do you reside?

A. Washington, D. C.

Q. What is your profession?

A. Chemist.

Q. How long have you been engaged in that profession?

A. About twenty-eight years.

Q. Have you any connection with the Federal Government?

A. Not at the present.

Q. Had you any connection with the Federal Government in 1902 or 1903?

A. I did.

Q. I will get you to state if at that time you had occasion to analyze Coca-Cola syrup.

A. Yes, I did.

Q. Now, state whether or not you detected any cocaine in Coca-Cola syrup, and if so, how.

A. I detected cocaine in some samples of Coca-Cola syrup that I examined in 1902.

Q. How did you detect the presence of cocaine, Doctor?

A. By the extracting of the syrup with solvents and evaporating off the solvent, purifying the extracted product and detected the effect on the nervous sensitiveness of the tongue, touched it to the tongue.

Q. What was the effect when you brought it in contact with your tongue?

A. It produced a class of numbness which existed for some time.

Q. State whether or not that is a test for cocaine.

A. It is.

Q. And when was that, did you say?

A. 1902.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. Doctor, you were not able to determine any quantity of cocaine, were you, yourself?

A. No, sir; I did not determine the quantity.

Q. Well, it was the mere minutest trace, if any there was?

A. It was a small trace; yes, sir.

Q. Didn't you testify in the Rucker case, that it was less than one four-hundredth part of one per cent.?

A. No.

Q. Well, did you undertake to testify to any quantity at all?

A. I did not.

Q. And the only way that you were able to discover what you thought was cocaine was by evaporating a large quantity of the syrup down and then putting it to your tongue, or putting the residue to your tongue?

A. No; I extracted the syrup with a solvent and evaporated that down and purified the product to some degree and then made the test.

Q. Now, how much of the syrup did you have to use in order to be able to get that result?

A. I don't remember now. It must have been less than a quart because I had a quart of the sample — something less than a quart.

Q. Something like a quart?

A. It was considerably less than a quart that I used for this extraction.

Q. Doctor, was that test that you stated — would it determine the existence of cocaine conclusively?

A. I think it would; yes, sir.

Q. Are there or not a number of other substances which might have given the same results that you reached?

A. I don't think many of those in existence at that time.

Q. For instance, aconitin?

A. I don't think aconitin would have given the same result.

Q. How about eucain?

A. Eucain was not brought out at that time.

Q. You mean, the people did not know about it, it was in existence then the same as now?

A. Yes, sir; but it had not been isolated.

Q. But would not eucain have given that same result that you have testified to?

A. Well, it might have.

Q. As a matter of fact, don't you know it does give that same result?

A. Yes, sir; these alkaloids which produce this local anesthesia have developed since that time.

Q. So that the tests you have told about do not definitely or absolutely determine the presence of cocaine in any quantity?

A. In connection with the testimony and the coca leaves that have been used, the coca leaves were the only source known at that time under the name of cocaine — which had this peculiar property of local anesthetizing, and it gave that test, by applying it to the tongue.

Q. Well, aside from the collateral facts and testimony in that case, the tests you referred to would not determine cocaine to the exclusion of certain other substances?

A. It was the best I knew at that time.

Q. Why would it have been so any more than now?

A. Because since that time other substances have been developed which give the same result. These substances were not developed then.

Q. Well, they were in existence at that time?

A. They were not developed.

Q. I know, but they were in existence?

The Court: It is not a question as to the giving of your opinion at that particular time, but they are asking you whether you can now from the tests that you made and experiments that you made whether it was cocaine or some-

thing else, the tests as considered now from present knowledge.

The Witness: I am speaking of the test that I made at that time.

Mr. Sizer: I am asking you about it now in the light of your present knowledge ——

BY MR. SIZER:

Q. Is it true that the test is not a conclusive test, the one you used?

A. Well, I would say that I was making the test, the best test that I could resort to ——

Q. I say, in the light of your present knowledge, is it true that that test is not a conclusive test?

A. It is not at the present time.

Q. Did you make any other tests at that time?

A. I made more or less complete analyses of the product at that time.

Q. Did you make any other test for cocaine at that time than the one you have testified about?

A. No, sir.

Q. Was there or not a better test at that time that you could have resorted to?

A. No, sir.

Q. For instance, the eye test?

A. Well, that was a similar test to the one I made, a little more delicate.

Q. Would it have more certainly ——

The Court (Interrupting): It is a question of accuracy of that test.

The Witness: All right.

Mr. Sizer: I believe that is all we care to ask him.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. This eucain that has been referred to, state whether or not that is a derivative of cocaine, Doctor.

A. Yes, I think it is.

Q. I will get you to state whether or not aconitin causes a burning before the numbness takes place.

A. How was that?

Q. I say, does the substance that is called aconitin cause an intense burning before numbness begins?

A. I can't say as to that.

Q. Will you kindly give the stenographer there what analyses that you made of the Coca-Cola? And the other substance that you found in the Coca-Cola in the various tests that you made at that time? I do not mean to keep

your private data, but let the stenographer keep it during the day while you are here and file that as Exhibits 1, 2 and 3, etc., to your deposition.

Mr. Sizer: I object to that. The only question that is open to this witness on rebuttal as I understood it, is as to the cocaine proposition.

Mr. Miller: I submit if I can show the constituents have been changed I am contradicting their proposition that there has been no change in the manufacture or the use of ingredients for the last twenty years.

The Court: I think it is competent on that point.

Mr. Miller: And if adverse counsel wants to examine you about it I will hand them to him.

Mr. Sizer: I object.

The Court: I think the objection is well taken.

Mr. Miller: I would be glad to pass them to adverse counsel. Have you copies of the analyses you made at that time?

The Witness: I have a copy of the report I made to the Commissioner of Internal Revenue at that time.

BY MR. MILLER:

Q. Does it or not contain your analyses of this product in connection with other ingredients that were in the products at that time?

A. Yes, sir.

Mr. Miller: I do not care to ask him more than that, but I can pass them to adverse counsel and they can ask him.

Mr. Sizer: We prefer to have the analyses offered in evidence and we prefer to have them proven in the usual way.

The Court: Well, if you object on that ground the objection is sustained. He may just state what the analysis was for.

Mr. Sizer: Yes, just state what analyses were made.

BY MR. MILLER:

Q. Just state what analyses were made from the report.

The Court: That is the same objection, the same ground of objection. He may state, state what he found as the result of his analyses.

BY MR. MILLER:

Q. State what you found as the result of your analyses aside from the cocaine, giving the percentages of each, refreshing your recollection from any data you have present.

The Court: Any data of his own, temporary data.
Mr. Miller: Yes.
The Witness: I reported on ——
Mr. Sizer: I object to what he reported on.
The Court: Yes, it is sustained.

BY MR. MILLER:

Q. Not what you reported but rather your recollection from it, what did you find?

A. I found the following figures from three different samples I examined at that time: Specific gravity — shall I give all of these?

Q. Yes.

A. The specific gravity 1.266. The three samples are in parallel columns all on the same line, it can all go on the same line here. The next sample, 1.271; the next, 1.271, identical with the other.

Q. I believe if you would give these to the stenographer, Doctor, just the contents of each of the three samples, without passing from one to the other, first give complete as to one sample, — that it would be more intelligible. I suggest you do that; take up the first sample again and give the specific gravity and so on, and then pass to the next.

A. The first sample was numbered Serial 4492.

Q. Well ——

A. Specific gravity 1.266.

Mr. Sizer: Before the witness proceeds with this analysis, I submit there must be some evidence offered to show that these were genuine samples of Coca-Cola and where he got the samples.

Mr. Miller: Now, if your Honor please, we will endeavor to do that and certainly more nearly than I think adverse counsel has done, as to the Coca-Cola drinkers. I objected to a great many of those questions that were asked and your Honor held that was ——

The Court: The Court remembers what it ruled. Let us get to this.

Mr. Miller: We will show these samples of Coca-Cola ——

Mr. Sizer (Interrupting): I would rather have him show it than to state what he is going to show.

The Court: Let the witness state before introducing the analyses where he got the samples.

Mr. Miller: All right, your Honor.

BY MR. MILLER:

Q. Doctor, just tell.

The Court: I mean, the samples that he analyzed.

The Witness: The first sample, which is Serial Number 4492, was obtained by me personally in Washington, D. C., from a druggist in that place who dealt in Coca-Cola syrup. The druggist's name was Z. D. Gilman; his place of business is 627 Pennsylvania avenue. The other two samples, numbered respectively 4516 and 4517, were received or sent to me by express by a deputy collector, Theodore Basch — a deputy collector in the office of the collector of Internal Revenue at Atlanta, Georgia.

Mr. Sizer: I want to object to any testimony about the samples sent to him by deputy collectors.

The Court: Do you propose to show by that deputy collector that he sent them?

Mr. Miller: I propose to show this by this witness that they came under seal from that deputy collector.

The Court: I am asking you, do you propose to introduce the deputy collector?

Mr. Miller: We expect to get Mr. Basch here. He is not here today, but we expect to get him here, and we desire at least to show by this witness that he received certain samples under seal from the collector.

The Court: You may show that, but I will admit it subject to the proof as to these two samples as to where Mr. Basch got it. If you do not connect it up I will exclude it. The first sample will be admitted and the evidence will be admitted as to that.

Mr. Miller: One authority I would like to submit to your Honor on the idea that we may not get that collector, although I think we can get him. The authority holds that there is a presumption that attaches to officials that they do their duty, and it is done correctly. Now, in addition to that, in admirality cases, the latitude is much broader than in any other kind of case, and matters of evidence are admitted inadmirality cases that would not be admitted in our State courts.

The Court: I should be glad to consider the authority.

Mr. Miller: I will pass it to adversary counsel and they can pass it to your Honor when they have examined it.

Mr. Sizer: We are not making that objection captiously but because I understand there is some variation in the analysis of these different samples, and if there is such variation, we want it shown that each of them was authentic and genuine.

The Court: I will admit it for the present on the statement of counsel that he would get the witness, and if he does not get the witness, I shall exclude it unless the authority submitted by Mr. Miller changes my mind.

Mr. Sizer: (After examining the authority.) I don't see anything in this authority that bears on that question at all.

Mr. Miller: It is the first section of the citation that I rely on.

Mr. Sizer: I don't see anything there that bears on it.

BY MR. MILLER:

Q. In that sample you yourself bought from this dealer give us as to that.

A. The sample was No. 4492 and was bought from a druggist. The figures obtained on the analysis were as follows:

Specific gravity, 1.2626.

Per cent of total solids, 51.25.

Per cent of ash, .06.

Per cent of sugar, .03, no — that is a mistake. Let me correct that.

Per cent of phosphoric acid, .03.

Sugar, 45.72.

Alcohol, by volume, .94.

Caffeine, 1.6.

Total acidity in $1\frac{N}{0}$ cc Na O C H8.

Per cent of tartaric acid calculated from acidity, .48.

Those are all the analytical figures from that sample.

Q. Lest we may not be able to get Mr. Basch, I am perfectly willing for counsel to see the report of the other sample, and if they agree, they may go in, in view of your Honor's ruling and can be accepted if we get Mr. Basch. I do not care to go into detail because there is a possibility that we cannot get him.

The Court: Benedict on Admirality, section 430, does undoubtedly show that Courts of Admirality, where justice requires it, takes notice of matters that would not be strictly admissible and are not strictly proven. They receive, for instance, the certificate of a notary, the certificate of a consulate, and so forth, but I think that should hardly be extended to matters of this sort at this stage of the trial, where if there was anything that made those different samples not correct, it might bring considerable injustice on the claimant, and therefore I would not admit it under this authority that you cite unless connected up, but I will admit it if counsel expect to reasonably connect it. I understand you are doing your best, but you don't know whether it can be connected.

Mr. Miller: I shall again say to adversary counsel that I am quite willing to pass those figures to them, and if they wish me to hold them until Mr. Basch comes and then treat

them as having been proven by this witness, I am willing to do so.

The Court: That is proper. The other two can be admitted with the understanding that the witness would testify that he used the same process on them.

The Court: Did you with reference to the others, use the same process?

The Witness: Yes, sir.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You say that this sample that you have been testifying about — that you got it from a druggist in Washington?

A. No, sir.

Q. You didn't?

A. Yes, sir.

Q. You didn't see it taken from the original package?

A. Yes, sir; I think I did.

Q. What kind of a container was it?

A. I think it was a keg or barrel.

Q. What was the name of the druggist?

A. E. D. Gilman.

Q. Now, then, what test did you make or process did you follow to determine the quantity of caffeine?

A. I extracted with an appropriate solvent.

Q. With what did you extract it?

A. With an appropriate solvent.

Q. What was it?

A. I don't remember, but it was an appropriate solvent.

Q. Can you tell what was the appropriate solvent?

A. It was probably ether or ether chloroform or chloroform of alcohol, some of those solvents.

Q. Can't you tell whether it was ether, chloroform or alcohol?

A. No, sir; that was ten years ago.

Q. Would any difference in the result arise from the difference in the solvent?

A. No, sir; not necessarily ——

Q. It is your opinion ——

Mr. Miller: Let him answer.

Mr. Sizer: I didn't know he hadn't finished.

The Witness: I would like to say that in the process I used this solvent and extracted the syrup and evaporated the solvent and re-crystallized the caffeine and weighed the re-crystallized drug.

BY MR. SIZER:

Q. In your opinion, no difference in the result could be

attributed to the solvent you used?

A. No, sir; not in the purification of the product.

Q. Could there be any difference in the result due to the character of the solvent?

A. There would be different things extracted along with the caffeine.

Q. Would there be any difference in the amount of caffeine you isolated or determined due to the character of the solvent?

A. I think not.

Q. Are you sure of that?

A. Yes, sir.

Q. With different solvents, caffeine is soluble in different proportions of water, is it not?

A. Yes, sir.

Q. At a temperature of 25 degrees centigrade, what is the proportion of water that you used to dissolve caffeine in?

A. I cannot say.

Q. What would be the proportion of alcohol?

A. I cannot say.

Q. What would be the proportion of ether?

A. I could not give you those figures.

Q. You could not give any of those things?

A. No, sir.

Q. And if the quantities of the solvents you would use would differ in the different cases, would not that make a difference in the tests you would make?

A. No, sir; I think not. The tests aimed to extract all of the caffeine from the syrup and then purify that.

Q. Go on and state the balance of your process.

A. I am unable to state the details of the process at this time that I used then.

Q. Is that as far as you are able to go?

A. Yes, sir.

Q. That you simply treated it with an appropriate solvent?

A. Yes, sir.

Q. How do you know now that you got all the caffeine out of the syrup?

A. I presume I did because I used an appropriate solvent. At that time I made the tests to the best of my knowledge.

Q. You presume you got the caffeine because you presume you used an appropriate solvent?

A. There is no difficulty about dissolving caffeine.

Q. But you don't know what solvent you used.

A. I don't know what solvent I used.

Q. Therefore, you cannot say whether you got all the caffeine or not.

A. I am able to say I think I got all the caffeine.

Q. You think you got it all?

A. Yes, sir.

Q. As you dissolved it, what method did you use for isolating or separating the caffeine from the other ingredients?

A. Re-crystallized in order to purify it.

Q. Explain what you mean by re-crystallization—what was the process?

A. I do not remember the details of the process.

Q. You don't remember how you re-crystallized?

A. No, sir.

Q. What is the test you used to determine whether you had found caffeine or something else?

A. The identification of the substance presents no difficulty in its purified form.

Q. But I want to know what was the process by which you determined it?

A. Its solubility and the appearance of the crystals and the way it acted. There was no necessity of making any specific reaction test.

Q. Did you make any specific reaction test?

A. I don't remember.

Q. Then you just simply determined from the appearance of the crystals?

A. That was one way.

Q. Could you determine from the appearance of the crystals — could you tell the caffeine from theobromine?

A. Probably not from the crystals.

Q. Then you don't know whether what you got was caffeine at all?

A. I think it was.

Q. Do you know?

A. I presumed I had caffeine.

Q. But you don't know whether it was caffeine or theobromine?

A. I did at that time.

Q. How do you know if you simply looked at it?

A. I cannot tell how I knew then.

Q. You say the appearance would not indicate whether it was the one or the other?

A. I just say I got caffeine at that time, and determined it as such.

Q. But you say you did not apply any specific test?

A. I don't remember whether I did or not.

Q. So far as your recollection at present, the only test

you applied was to look at it and see the crystals?

A. I got it pure and weighed the resultant products.

Q. But still, so far as you remember, the tests you applied, namely the examination with the naked eye, would not determine whether what you had was caffeine or something else?

A. It was determined by the manner in which it acted and its solubility in water and all those things.

Q. What was its degree of solubility?

A. Very soluble.

Q. But how much.

A. I didn't test it.

Q. To what extent would caffeine and theobromine differ in solubility?

A. There is not much difference between caffeine and theobromine in their solubility.

Q. How do you know there was not some of the caffeine left in the syrup?

A. I aimed to make a thorough extraction.

Q. I know that, but what test did you use, how are you able to say whether you got all the caffeine?

A. I am not able to say that definitely, whether I did or did not get all of the caffeine out of the syrup. I can only say at that time I performed the tests to the best of my knowledge and the tests as made and reported, was the best I could do with it. I am not able to give the details of those tests at the present time.

Q. You reported tartaric acid calculated from the acidity. As a matter of fact, do you know whether there was any tartaric acid?

A. No, sir. That is a form of analysis in reporting those things.

Q. Then you don't know whether there was any tartaric acid in it or not?

A. No, sir.

Q. You don't undertake to say from your analysis that there was any?

A. No, sir.

Q. Did you use any animal charcoal in the purification of the caffeine?

A. I don't remember, but I don't think I did.

Q. Do you know what substance you did use in trying to purify it?

A. No.

Q. How did you get the phosphoric acid?

A. I presume that could be determined by weighing it with phospo-molybdate.

Q. I didn't ask you about any presumption, but are you

able to state how you determined the quantity of phosphoric acid in that syrup?

A. I don't remember how I determined it.

Q. Do you remember or can you state how you determined the quantity of cane sugar?

A. I presume ——

Q. (Interrupting.) No presumptions.

A. I am not able to say precisely how I determined it.

Q. By what process did you ascertain it ——

A. Presumably by trying ——

The Court: That is the very thing we don't want. Just state your recollection. We don't want any of your presumptions. If you have any recollection, say so, but don't give your presumption.

BY MR. SIZER:

Q. Then you are unable, in short, to state any of the details of the analysis and give us any information as to how you reached the results set down?

A. At the present time.

Q. You testified as a witness in the case of the Coca-Cola Company against Rucker, did you not?

A. Yes, sir.

Q. You stated in that testimony, did you not, that all three samples which you had analyzed were practically the same?

A. I don't remember now.

Q. Didn't you state this; and I read from the transcript of your testimony in that case and ask you whether or not it is correct ——

Mr. Miller: I object to offering any part of this transcript unless you offer it all.

Mr. Sizer: I am not offering the transcript of the testimony; I just want to read him and ask him ——

The Court: The exception is not well taken, but if the testimony is as you say, it does not contradict anything here. He has not stated here that they were not the same. However, on the theory that the other two might be introduced, it is probably competent to ask him the question, but first ask him if they were substantially the same. As I have said before, it often eliminates any reference to the record by asking the same question.

BY MR. SIZER:

Q. Is it or not true that the three samples you analyzed were substantially the same?

A. Yes, sir; I think there was a little difference in the weight of the sugar.

Q. About fifty per cent sugar in each sample?
A. Yes, sir.
Q. You found that the samples contained from .4 to .5 of one per cent. of acid ——
A. Yes, sir.
Q. —— phosphoric acid, and contains phosphate to a small extent?
A. Yes, sir.
Q. You did not undertake to say in your testimony in that case how you arrived at any of those results?
A. I was not asked.
Q. Then you didn't state?
A. No, sir.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. Was the test you applied at that time as to the samples substantially the same.
A. The methods of analyses were substantially the same.
Q. Were the tests you applied by testing also the same?
A. Yes, sir.
Q. State whether or not the tests you then applied were standard and recognized tests?
A. Yes, sir.
Mr. Sizer: I object to that. He says he don't know anything about what tests he applied.
The Court: I think it is proper where a witness does not recollect the details after a number of years, for him to state that he used the recognized test in use at that time. If he did, he can say so.
The Witness: Yes, sir.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. How do you know they were?
A. I know I investigated the matter at the time and made the tests as laid down.
Q. Where did you investigate to find out what were the standard tests?
A. The literature.
Q. What literature?
A. That I had at hand.
Q. What was that?
A. It was the Dispensatory and the Pharmacopœia and works on organic chemistry and analytical chemistry.
Q. Do you mean to say those are standard of chemical analysis?

A. Yes.

Q. And those are the standards you followed in making this test?

A. Yes, sir.

Q. The standards laid down in the Dispensatory—

A. In the Dispensatory and the Pharmacopœia and works on organic chemistry.

Q. Do all of those authorities give the same test?

A. Yes, they give the same test; all the standard authorities give the same test.

Q. And the same methods of analysis are laid down in all of them?

A. That is too wide. I cannot say that they are standard as to all things. My methods were based upon the standard authorities that I had at hand at that time.

Q. Which ones?

A. I cannot remember which ones I used or consulted.

Q. It is a fact that the standard authorities differ?

A. They do not differ very widely. They differ as to the details, but they don't differ as to the standard methods of analysis.

Q. Can you tell which one of the authorities you followed at the time you made the analysis?

A. No, sir, I cannot.

Q. You don't know whether it was the Dispensatory or the Pharmacopœia or some other authority?

A. No, sir.

BY MR. MILLER:

Q. State whether you consulted various authorities before entering upon the tests and whether or not you were familiar with the standard tests at that time?

A. Yes, sir.

BY MR. SIZER:

Q. Which of them did you consult before entering upon the analysis?

A. I don't remember.

Q. Then how do you know you consulted any?

A. I know very well.

Q. How is that?

A. I know of my own knowledge I consulted authorities at the time of making the analyses.

Q. Do you remember that distinctly?

A. Yes, sir.

Q. Which ones?

A. I don't remember which ones; probably all I had at the time.

Q. You cannot remember whether you read the al-

manac or the dictionary or the Pharmacopœia or something else?

A. I cannot remember which particular one or how many authorities I had at the time and consulted in the transaction of this work that I did ten years ago.

Q. How is it that it impresses itself upon your mind that you consulted some authorities and you cannot tell what they were?

A. It is my custom, when I make investigations, to consult authorities.

Q. And so you testify because it was your customary habit?

A. I remember especially in this case that I consulted several authorities and made a more careful examination of the matter than I would in an ordinary routine analysis.

Q. How many authorities did you consult?

A. I presume all I had.

Q. I don't want your presumption, but your recollection. Have you any recollection as to how many authorities you consulted?

A. I have not.

Q. You don't know whether it was more than one?

A. I think it was more than one.

Q. Do you remember more than one?

A. Yes, sir.

Q. How many?

A. A dozen.

Q. And yet you cannot tell a single one?

A. Yes, the Pharmacopœia and the Dispensatory, Prescott's Method of Organic Analysis, Thorpe's Dictionary of Applied Chemistry, and all the works I had in the library at that time which contained any bearing on this investigation.

Q. You mean to say that you consulted all those books you had in the library in connection with this particular analysis?

A. I presume I did.

Q. I have told you several times that I don't want your presumption.

A. I am testifying to the best of my ability on the things.

The Court: Everything that the witness has said about what he presumes is excluded.

BY MR. SIZER:

Q. Do you undertake distinctly to say that you remember any particular authority that you consulted?

A. I think I can.

Q. Didn't you testify a while ago, and haven't you said several times, that you cannot recollect a single authority?

A. I have tried to testify that I examined the authorities I had at hand.

Q. Didn't you also say that you were unable to give us a single authority that you consulted about this matter?

A. I may have said so.

Q. Is not that true?

A. The truth is, I examined in this investigation the authorities I had at the time and which were at hand bearing upon the investigation.

Q. Now, you say the National Dispensatory was one of them?

A. Yes, sir.

Q. Is there anything in that about analytical or chemical work?

A. Yes, sir; a great deal.

Q. Will you please take that and point out the particular part you followed in making the analysis (handing the book in question to the witness).

A. I cannot do it.

Q. How could you do it then, then?

A. I cannot remember now what part of the book I consulted in that investigation.

Q. You cannot remember that you consulted any part?

A. Yes, sir.

Q. Look through there and tell us what there is in that book that in any way assisted you in the method of analysis that you followed.

Mr. Miller: Is that an edition that was in existence at that time?

Mr. Sizer: I don't know about that, but if it was not, he can say so.

A. Here is the article, page 344, on caffeine.

Q. Does it give you any analytical method for determining the quantity of caffeine in anything?

A. It gives the description of the preparation, which would be a method of determining it in some instances. It also gives the properties, and it gives the various constituents of caffeine, the melting point, the solubility, the volatility, and its reaction with various substances.

Q. Just read from that book what it says with respect to the analytical method to be followed in determining caffeine.

A. These are all analytical methods which can be used

in determining caffeine.

Q. You took that book and followed the analytical methods laid down there?

A. I didn't say so.

Q. Is there any analytical method laid down in that book?

A. These are all methods which can be used in the analysis detection and extraction of caffeine.

Q. Did you follow those methods?

A. I do not remember.

Q. What did you consult it for?

A. You ask me to point out in this book something that had to do with the determination of analysis of substances containing caffeine, and that is the article I show you.

Q. And that was the book you used in determining the analytical method—

A. I don't say so.

Q. Did you or not say so?

A. I did not. I don't know.

Q. Did you follow this?

A. I don't remember.

Q. If you didn't follow it, what was the purpose in referring to it?

A. If I referred to it, it was for the purpose of obtaining information on the subject.

Q. Now, what were the other books you consulted?

A. The Pharmacopœia, that is contained in the Dispensatory.

Q. What else?

A. Prescott's Organic Analysis.

Q. What else did you have?

A. Thorpe's Dictionary of Applied Chemistry. I had other works on organic chemistry.

Q. And which particular one of the books was it that you followed in determining the amount of caffeine?

A. I don't know. I have said that several times.

Q. What was the date on which you made that analysis?

A. The date is on the report.

Q. Didn't you say you made it in 1902?

A. I don't remember. The right date is on the report.

Q. Is it not a fact that you made the analysis in 1900?

A. I made the analysis prior to the date of that report. That was the ending of the analysis.

Q. This report was made on the second of April, 1901, was it not?

A. If that is the date, yes.

Q. And the analyses were made some time before that?

A. Yes, sir.

Q. Do you know how long before?

A. No, sir; but not long before.

Q. Is it not a fact that at the time of the passage of the Pure Food Law in 1906 there were no known methods of determining the compositions of soft drinks, syrups and soft drinks, with any degree of accuracy?

Mr. Miller: We object to that.

The Court: I overrule the objection.

The Witness: In my opinion, there were.

BY MR. SIZER:

Q. Did you hear the testimony of Doctor Fuller on behalf of the Government?

A. No, sir.

BY MR. MILLER:

Q. What was that previous question that you answered?

A. About whether there were methods of analysis of soft drinks prior to the passage of the Pure Food Law.

Q. Do you or not state that there were any specific methods outlined and published for that purpose?

A. As to the analysis of soft drinks prior to the passage of the Pure Food Law, I think there were.

Q. Can you recall some of those?

A. The authorities all gave methods for the analysis and determination of organic substances in any drink.

Q. That is literature of the kind you refer to, the Dispensatory and the other books you have referred to?

A. The chemical literature containing methods of determining the organic substances in any mixture.

Q. Was there or not any standard publication or method at that time with respect to the determination of the chemical analysis of soft drinks as distinguished from others?

A. I don't know of any such publications as that.

BY MR. SIZER:

Q. As a matter of fact, there was not at the time of the passage of this Pure Food Law any method published of determining with accuracy the constituents of these soft drinks?

A. I do not know of any methods being published under that title, methods of analysis of soft drinks.

Q. There have been methods published since the passage of the Pure Food Law?

A. I do not know of any of that particular substance.

(Witness excused.)

W. B. REEVES,

the next witness called in rebuttal on behalf of the United States, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,

BY MR. MILLER:

Q. Where do you live?

A. Atlanta.

Q. State what relation you sustain to the Coca-Cola Company in the year 1901 and in the year 1902.

A. In 1901 I traveled for them just during the summer. In 1902 I started out to travel for them in March, and about May 1st I was taken from the road and sent to their New York office.

Q. What was your connection with them in 1900?

A. I was traveling for them six months in the summertime.

Q. State during that period, 1901, 1902 and 1900, from what branch, if any, of the Coca-Cola Company, Washington, D. C., was supplied with Coca-Cola syrup.

A. I could not state positively, but my general understanding was that it came from the Philadelphia branch, everything in that territory.

Mr. Sizer: I object to a mere understanding of the witness.

The Court: The objection is sustained.

BY MR. MILLER:

Q. What reason have you for making that statement?

Mr. Sizer: The statement being excluded, I object to him stating why he makes it.

The Court: I sustain the objection.

BY MR. MILLER:

Q. What information have you on that subject?

Mr. Sizer: I object to that for the same reason.

The Court: I sustain that objection.

BY MR. MILLER:

Q. What do you know as respects that matter?

A. I do not know anything, because I was not at the origin of shipments when they started out.

Q. Were you in the City of Philadelphia and at the branch office of the Coca-Cola Company at any time?

A. I suppose I spent three days there in my life altogether.

Q. When were those days spent there?

A. I could not state positively. I have stopped off at

Philadelphia on my way to New York, in 1902, probably the first of May.

Q. State whether or not you went to the office of the Coca-Cola Company, or the manufacturing place of the Coca-Cola Company, in Philadelphia.

A. I did. I went into the office, but not into the factory department.

Q. Now, when you went to New York, what was your connection there?

A. Manager of the New York branch.

Q. And as such, what were your duties?

A. My duties were to manage the salesmen and run the office in a general way, and solicit some business myself.

Q. What territory was supplied with Coca-Cola from your branch of the New York office?

A. Why, with me a very few shipments out of New York City—it was built there for the purpose of supplying the New York trade only.

Q. Well, state from where Merchandise No. 5 was procured at the time for New York and other branches.

A. New York had an office at that time and did not manufacture at that time.

Q. Where did you get your Coca-Cola syrup from?

A. From the Philadelphia factory.

Q. From the Philadelphia factory?

A. Yes, sir.

Q. Where was Merchandise No. 5 obtained from that was used at the Philadelphia factory?

A. I could not state positively. I understand—

Mr. Sizer: Don't state that.

BY MR. MILLER:

Q. I will get you to state whether or not you had any conversation with Mr. Asa G. Candler, president, on that subject.

Mr. Sizer: We object to that.

The Court: The objection is sustained.

BY MR. MILLER:

Q. If the formula for making Coca-Cola syrup was changed about 1904 or at any other date, tell what you know in respect to that.

A. We did not commence manufacturing at that date; did not have anything to do with it at that time in 1904.

Q. Well, what did you know as to a change in the nature of Merchandise No. 5 at that time, if anything, in the manufacture of Merchandise No. 5, if anything, at that

time?

A. If I—I do not know positively as to where it was manufactured, whether there was any change in location of manufactory.

Q. Do you know whether there was any change in the location of the manufactory?

A. I could only state from what I understand—I could not state positively.

Q. How long were you with The Coca-Cola Company in Atlanta, Georgia?

A. I was not with them there at all, only as to start there. My trip lasted—as long as I was with the company I was over there at the beginning and end of my trip, which lasted about six months.

Q. At the time you were in Atlanta was there any portion of the syrup manufactured in Atlanta?

A. At the time I was at Atlanta?

Q. Yes.

A. I have seen syrup manufactured there or I have seen them simply put sugar into the tank and I was not particularly interested in what they used at that time, so did not investigate.

Q. If after you went to New York there was any change—I mean, any change in place where this Merchandise No. 5 was manufactured, tell what you know about that.

A. Well, I would have to state from a general understanding; I could not make a positive statement.

Q. You do not know who manufactured No. 5?

A. Let me see—I knew that Doctor Schaefer manufactured it—I don't know the exact date when he commenced manufacturing it.

Q. How came you to know Doctor Schaefer manufactured it?

A. Why, I suppose I heard from the heads of the company, heard them state it from time to time.

Q. Did you or not go or meet with Doctor Schaefer, attend meetings when Doctor Schaefer was present?

A. I have attended several meetings — not attended them, but I have been with Mr. Asa G. Candler at several meetings at the R. & H. M. Chemical Company office every time he came to New York—every time he came to New York he usually took me along with him, but I did not hear what was said at these meetings.

Q. And what do you mean by the R. & H. Chemical Company.

A. That is the selling agent.

Q. Well, what do you mean by "R. & H."? What do

they stand for?

A. For the Roessler & Hasslacher Chemical Company.

Q. When was the first time that the president of the company, Mr. Asa G. Candler, came to New York for the purpose of conferring with Doctor Schaefer, as far as you knew?

A. Why, Mr. Candler usually came to New York about twice a year, and he always had a meeting with Doctor Schaefer, I think, while he was there.

Q. When did you go to New York, did you say?

A. 1902.

Q. How long after you went there until Mr. Candler came?

A. I think Mr. Candler was there in three months after I went there. I don't think he called on Doctor Schaefer that time. If he did, I was not with him.

Q. When was the first time he called on— First, I will ask you, would you usually go around in New York with Mr. Candler when he came there?

A. Yes, sir; usually. One or two calls he left me in the office, but I usually went with him on these visits.

Q. When was the first occasion when he went to see Doctor Schaefer?

A. I could not tell approximately the date.

Q. I am talking about the first time.

A. I could not positively answer. It did not concern me very much and it is hard for me to remember back that far. Like calling on the different banks there, I could not state anything positively about it.

Q. Well, I understood you to state he didn't go the first time.

A. I stated I didn't think he did. Mr. Candler was probably away from me two or three hours, or probably two or three days; I could not tell what he did, but I didn't go with him on the first trip.

Q. Now, while you were traveling out of Atlanta as salesman for the Coca-Cola Company and before you went to New York, what territory did you travel in?

A. I started from Atlanta, Ga., and went out as far as Seattle and returned.

Q. Did you go to Washington?

A. Washington, D. C.?

Q. Yes.

A. No; they covered the work at Washington, D. C., from New York.

Q. Was that territory at Washington covered by salesmen from Atlanta?

A. At that time I could not state positively, but I

think probably Washington City was worked twice a year. The business at that time was undeveloped there.

Q. And by "worked" you mean salesmen were sent there to solicit orders?

A. Sent there probably twice a year. I am stating that from what I know from similar territory, how it was worked.

Q. Well, when salesmen solicited orders, what followed when the orders were taken, the shipments of Coca-Cola syrup would be sent forward in ordinary course?

A. The ordinary course of the salesman was to get the orders and send them to the Atlanta office to be O. K.'d, and then after that the Atlanta office sent the shipment slips to the different branches to be filled.

Q. That is, to the different branches of the Coca-Cola Company throughout the United States?

A. Yes, sir.

Q. Now, what number of offices did the company have at that time?

A. Let me see—they had Los Angeles, Dallas, Texas, Chicago, Philadelphia and Atlanta. They possibly had an office in New York at that time and an office in Pittsburgh.

Mr. Miller: You may cross-examine.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. Mr. Reeves, do you drink Coca-Cola?

A. Yes, sir.

Q. How long have you drunk it, Mr. Reeves?

A. I think my first glass must have been about—let me see, I drank a little bit as far back as twenty years ago.

Q. And what is your age now?

A. Thirty-six.

Q. How much do you drink per day?

A. Now?

Q. Yes.

A. About a glass a day; sometimes I will go for two or three weeks without drinking any.

Q. Did you drink it in larger quantities at any time?

A. When I was in the New York office I drank on an average of from five to seven glasses per day.

Q. Did it ever produce—or, what effect did it produce on you?

A. I could not state that it has ever produced any effect on me—any bad effect.

Q. Are you in good health?

A. Yes. I am in better health than I have been in

some time, at the present time.

Q. Did the use of Coca-Cola ever tend to create a habit or craving with you?

A. Well, I have always contended that it did not, and I went for seven months—let me see about that; I went from September, 1901, until about March, 1902, without drinking any as an experiment, and I did not have a craving for it and I did not see any change at that time—I think I went back to drinking it then.

Q. You say that you drink about one glass a day?

A. I will average about that a day. I should say that some weeks I will go without drinking any; whenever I feel like it I will go and take a glass.

(Witness excused.)

Mr. Miller: It is now practically 12 o'clock. We did not know exactly that the claimant would close in the case at this time. I think time would be saved very materially if your Honor would permit an adjournment until Monday morning.

The Court: How many more witnesses will you have?

Mr. Miller: We will expect to call Mr. Basch, if we can get him. We might have three or four witnesses—I might be able to examine one right now if your Honor will give me a minute for conference.

The Court: We will take a recess for five minutes.

(A recess was then taken for five minutes, after which the Court met pursuant to recess, and the following evidence was taken.)

Mr. Miller: We will call R. K. Smith.

R. K. SMITH,

a witness called in rebuttal by the Government, of lawful age, duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Talk out loud, Bob.

A. Yes; all right.

Q. How old are you?

A. Twenty-two.

Q. Where do you live—in Chattanooga?

A. Yes.

Q. What has been your experience at soda fountains? Where have you served at fountains — have you served fountain drinks here in Chattanooga where Coca-Cola was dispensed?

A. Yes, sir.

Q. How long have you been in that business?

A. Yes, I have.

Q. How long have you been in that business, and at what places?

A. I have been in it going on about six or seven years?

Q. Well, what places have you worked?

A. I worked at the Live and Let Live place, the Palace and for Brock.

Q. Did you or not engage in business a while for yourself?

A. Yes.

Q. Where?

A. At the Temple Court Building.

Q. I will get you to state the result of your observation and experience as to the consumption of Coca-Cola by children.

Mr. Sizer: I object to that. He is going back into a matter in chief. They examined Doctor Kebler and several other witnesses on that.

Mr. Miller: I submit, if your Honor please, we were met with the proposition—I first started in to do that and your Honor said that we might take it for granted without proof—and when I went to examine Doctor McQuillan then counsel sought to show certain things that it is unnecessary to sum up—I propose to meet that, without stating what I propose to show by this witness—I propose to meet just what they brought out in their testimony. We should not have gone into that question at all except in rebuttal of testimony.

Mr. Sizer: I will say that we would not have gone into that matter at all except in rebuttal of the testimony of Doctor Kebler and perhaps one or two or three witnesses to the effect that children were in the habit of going to fountains. If counsel is willing to eliminate all of that from the testimony with respect to the habit of children drinking Coca-Cola, we are willing to have the same course with reference to our testimony.

Mr. Miller: Our inquiry is as to the public health. There is no limitation put on it. It was a part of our case in chief what its effect is on the nervous person and children. There we stopped. That is the effect we have shown on them. I undertook to show by way of rebuttal —if that is not a rejoinder of issue I don't know what is— I undertake to show by rebuttal that children do take it.

Mr. Sizer: They started out that the caffeine used in Coca-Cola was a poisonous and deleterious ingredient. In order to do that they asserted the proposition that children were in the habit of visiting soda fountains and getting Coca-Cola and that it is more injurious to children

than to grown people, and they introduced Doctor Kebler —your Honor will remember specifically that he testified about standing around at soda fountains and watching children drink, and the Rev. Dr. Stewart to the same point.

The Court: I think the only point that gives me doubt was Mr. Miller's statement that I had limited the matter in chief. My recollection is I did not limit them in chief and I only limited the proof to proving whether it was indiscriminately sold. I never limited the proof in chief as to the extent of children drinking it, or I have no recollection of it. They offered to prove in chief by two or three witnesses—I can't remember their names—that whoever wanted to, drank it. I do remember that they did prove in chief that children drank it by the Rev. Dr. Stewart and Dr. Kebler.

Mr. Sizer: And then a man who sold it at Bridgeport, Ala., said that the boys drank it.

The Court: Yes, that was distinctly matter in chief, and the claimant brought on witnesses to contradict that, but that was their defense and their right, and I think this is matter in chief.

Mr. Miller: If your Honor takes that view—

The Court: I did not intend to limit you on that point of whether children drank it or not. I limited you on another point, showing that it was indiscriminately drunk, that children could get it. But I allowed you to go into the fact as to whether children drank it, and if I am wrong I will allow you to go into it.

Mr. Sizer: There was no such limitation as Mr. Miller insists on.

The Court: I do not recall it, but counsel can look it up. I do remember limiting you to the fact it was sold indiscriminately. That was proven two or three times and not disputed.

Mr. Sizer: No, we did not dispute that.

Mr. Miller: I submit the fact that it would be sold indiscriminately; that means that it was sold to children.

The Court: Well, as to whether they wanted to buy the Coca-Cola at soda fountains, that they could buy it, there is no evidence that soda fountains refused to sell it to children, and there is no dispute on that. There is a dispute as to the question of fact whether children availed themselves of that privilege, and that you went into yourself and they denied it.

Mr. Miller: I understood it was brought out by their cross-examination. I understood that we were restricted in that respect.

The Court: I think that I admitted all the testimony

of your witnesses as to the extent to which children actually drank it.

Mr. Miller: I did not think your Honor did—I thought your Honor eliminated that.

The Court: I understand Rev. Dr. Stewart testified directly to that.

Mr. Miller: As to the general consumption all over the United States only.

The Court: You proved it that he saw it sold at nine or ten o'clock at night—that children went into—

Mr. Miller: I think instead of "children" he said "young people."

Mr. Sizer: Well, he declined to state children; Mr. Miller tried to get him to say children did.

Mr. Miller: Well, with that understanding, your Honor, we may recall the witness on Monday if we find that your Honor did limit us on that.

The Court: Yes.

Mr. Miller: If we find that we are in error as to that, we would like to file a brief on the legal proposition as well. I will give adversary counsel a part of it.

The Court: On what legal proposition?

Mr. Miller: That it is not proof in chief at all.

The Court: I don't care for it.

Mr. Miller: I should say we are not prepared to go further with the examination until Monday morning and I think we can conclude Monday unless the cross-examinations are very lengthy.

The Court: You have about two witnesses more?

Mr. Miller: I think we will not have in excess of four, and perhaps, unless your Honor rules this testimony out that we have just offered, we will have three or four dispensers from Chattanooga. Barring that, we will only have three or four witnesses to recall.

The Court: Well, I think it is proper to take an adjournment now, with the understanding that by the reading of the depositions,—I mean, treating them as in, we have saved time,—I have no doubt about that, and if we can shorten it by an adjournment, on the request of counsel, we will adjourn now until Monday morning at nine o'clock.

(Thereupon the Court, at 12:15 o'clock P. M., adjourned until Monday morning, April 3, 1911, at 9 o'clock A. M.)

CHATTANOOGA, TENNESSEE,

MONDAY MORNING, APRIL 3, 1911, NINE O'CLOCK A. M.

Court met pursuant to adjournment.

Appearances: The same as on Saturday.

GOVERNMENT'S EVIDENCE IN REBUTTAL CONTINUED.

The Court: We will proceed with the case on trial.

Mr. Sizer: Since the adjournment on last Saturday we have received the deposition of Doctor Schmiedeberg, to which we referred at the time our testimony was closed, and we ask leave now to offer that deposition.

The Court: You may do so.

Mr. Miller: If your Honor please, we make no question as to the time within which that deposition arrived, that is entirely out of the way, and as I understand in the first place is eliminated, any disputed matters of that kind, but in the next place we say that we do not offer in general any objection on that point, but we do offer certain objections to the reading of that deposition.

The Court: Well, state them.

Mr. Miller: In the first place, the deposition contains the German text and also what purports to be the English translation. We say that translation is not correct. That is the first objection, because we cannot understand German and the jury cannot understand, and we object to that.

In the next place, certain instances I have pointed out and I have given a copy to adverse counsel, we say that the answers to the questions on cross-examination were not responsive in the slightest. This deposition was taken on interrogatories and we could not face the witness face to face, and inasmuch as the answers on direct examination are responsive, we do not think that they should be permitted to read the deposition in chief where the answers are responsive to the questions and when ours on cross-examination are not responsive, that it would be unjust and unfair to us, and we will pass a copy of our objections to the deposition of Doctor Schmeideberg to adverse counsel.

(The objections are as follows:)

April 2, 1911.

CROSS-INTERROGATORIES ON DEPOSITION OF DR. OSWALD SCHMIEDERBERG.

No. 1. Page 15, Question 3. State whether or not it (caffeine) is a food in any sense; if so, what. Answer js not responsive.

No. 2. Page 16, in answer to Question 5, the word "foods" is used as a translation of "genussmittel."

No. 3. Page 16, Question 6. What are the most prominent effects of caffeine on the human system? Answer is restricted to "quantities under consideration."

No. 4. Page 16, answer to Question 6 is incorrectly translated.

No. 5. Question 7, "Does it (caffeine) tend to produce sleeplessness and wakefulness, sometimes called insomnia?" Answer is again restricted to "quantities under consideration."

No. 6. Page 16, Question 8. "Suppose a nervous individual, or growing child, during the period of adolescence, or high school pupils doing hard work, should repeatedly take doses of caffeine in the form of a soft drink, containing, say 1.20 grains of caffeine, what would be the result?" Answer not responsive.

No. 7. Page 17, Question No. 9. "Is it not well recognized that children should refrain from taking stimulants like caffeine?" Answer is not responsive.

No. 8. Page 17, answer to Question 9 is not correctly translated.

No. 9. Page 17, Question 10. "If caffeine produces sleeplessness, or wakefulness, and a child or nervous individual takes doses as above from day to day, what might be the tendency, and what the effect, of such a course on the nervous system?" Answer not responsive.

No. 10. Page 17, Question No. 10. Answer incorrectly translated.

No. 11. Page 18, Question 11. "If this stimulation is continued from day to day, would it not have a tendency to lower the vitality of the individual? If not, would it increase the vitality, and if so, why and how?" Answer not responsive.

No. 12. Page 18, Question No. 12. "Suppose an individual afflicted with tuberculosis should consume a soft drink containing 1.21 grains of caffeine from day to day, would the influence of such a beverage be beneficial or otherwise? If you answer in the affirmative, give reason why, and if the negative, state the reasons." Answer incorrectly translated.

No. 13. Pages 18 and 19, Question 13. "Is or is not the condition frequently known as nervousness the forerunner of many diseases?" Answer not responsive.

No. 14. Page 19. Question, "Does caffeine in any way influence the important constituents eliminated in the urine, and if so, why, and what is the significance of it?" Answer incorrectly translated.

No. 15. Page 20, Question 19. "Would one or more glasses of a beverage of the above character be favorable or otherwise to metabolism?" Answer is not responsive.

No. 16. Page 27, Question 38. "If fatigue is due to the conditions you have described, is it or is it not true

that a stimulation of the nervous and muscular system will increase the agents which cause fatigue and proportionately lower the reserve forces of the individual?" Answer is not responsive.

No. 17. Page 27, Question 39. "Will or will not the repeated stimulation with the results set forth above be more or less of a drain on the physiological reserve of the individual?" Answer is not responsive.

No. 18. Page 27, Question 40. "Is it or is it not a fact that the lowering of the physiological reserve of the individual renders him more liable to disease and less able to do efficient work?" Answer is not responsive.

No. 19. Page 28, Question 42. "If you answer in chief that you have had occasion to write any article or treatise dealing with caffeine as contained in Coca-Cola syrup, please file a copy of such article or treatise and state occasion for your writing or publishing the same." Answer incorrectly translated. As given in translation, answer is as follows: "I have not written any article or treatise on Coca-Cola except this deposition." The proper translation is: "Outside of this opinion I have written nothing on Coca-Cola."

No. 20. Throughout the interrogatories the translation is faulty. For example, the word "genussmittel" is constantly translated as "food materials."

The Court: As far as the question of translation is concerned, we have a couple of German scholars—

Mr. Miller: Yes—

The Court: When was this deposition taken?

Mr. Sizer: I do not remember exactly. We prepared our interrogatories for this witness some two months ago and sent them to Max Adler at Strassberg, Germany, when they were agreed on, and after the interrogatories were mailed something like a month we received from the Dead Letter Office a notice that Max Adler was no longer in Strassberg, and had removed to Los Angeles, California, and we had to send another copy of the interrogatories to the Vice-Consul at Kiel, Germany, and the deposition was taken by the Vice-Consul at Kiel on the same interrogatories, and that is the reason it took the deposition so long and that it was so much delayed.

Mr. Miller: We agree to that and counsel will bear me out when I say that everything was waived, everything else, and we agreed with the defense that that might be done. We do not object to the deposition because of time. That does not rise in this case.

The Court: This German word is translated "coffein" all the time and I suppose it means "caffeine."

Mr. Sizer: The German word is "coffein." I understand the only difference between the German word and the English word is that the Germans spell it "c-o-f" instead of "c-a-f."

Mr. Miller: We do not make any objection about that.

The Court: Very well.

Mr. Miller: We will pass, or have passed counsel a copy of the objections, and we pass one to your Honor.

The Court: Yes.

Mr. Miller: In that portion of the translation we might refer to one particular word of the translation, the word is used as a food—

The Court: Is that the word "genussmittel"?

Mr. Miller: Yes, that is objectionable.

Mr. Sizer: I think we can probably settle all this question about the correct translation by selecting Dr. Boos on one side and Dr. Wesener or Dr. Mallet, some of our experts, and let them get together and go over this.

The Court: I have read the objection to the deposition in so far as it relates to the incorrect translation. I think that the matter can be taken by a German scholar on each side, that they can take the deposition and see if they can agree, and if they cannot, they can appeal to the Court, and I think with a German dictionary the Court may be able to refresh its recollection sufficiently to decide the matter.

So far as the objection that the answers are not responsive is concerned, it is true that some of the answers are not responsive. For example, the answer to Question No. 12, on page 18, where the question calls for the reasons to be given for the answer, the reasons are omitted. In one or two, or some of the other answers, they are not answered as fully as they might be, but they relate to perfectly obvious matters and not the general knowledge or matters otherwise than have been fully proven in this record, and that is immaterial. And I shall in so far as I find that the witness does not give his reasonings, instruct the jury, as I have done, that in considering the opinion of experts they are to weigh the testimony largely in accordance with the reasons for the opinion, and where the witness does not give the reasons it would go to the weight of the testimony in the mind of the jury, or it should do so. On the whole, I think these answers on account of not being responsive go to the weight and are proper matters to argue to the jury as to the effect of the weight of the opinion. I therefore overrule the objection and suggest that the two German scholars get together and go over the deposition.

Mr. Sizer: I suggest that they let one of their German scholars—Dr. Boos—

Mr. Miller: Doctor Boos will do so when he is at leisure. We need him here just now.

The Court: There are only three or four sentences objected to and I can take a recess of ten minutes if you want me to.

Mr. Miller: Well, I have no objection, and in order to save time I will say I have prepared what we feel to be proper issues, as suggested at a former day of the term, and I would be glad to file one or pass one to the Court, and another one to adversary counsel.

The Court: Just let the record show that those were presented.

(The proposed issues are as follows):

PROPOSED ISSUES OF LIBELLANT.

"DISTRICT COURT OF THE UNITED STATES,
SOUTHERN DIVISION,
EASTERN DISTRICT OF TENNESSEE.

UNITED STATES
vs.
FORTY BARRELS AND TWENTY KEGS OF COCA COLA.

The Libellant, in lieu of the issues of fact tendered by Claimant (and reserving exceptions heretofore taken) hereby presents the following as proper issues to be submitted to the jury:

1. Was the caffeine contained in the product seized a poisonous ingredient?

2. Was the caffeine contained in said product a deleterious ingredient which may render or might have rendered said product injurious to health?

3. Had the product seized herein been mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority thereof was concealed?

4. Were there such substances as "coca" and "cola" known under their distinctive names at the time this proceeding was begun?

5. Was the name "Coca-Cola" as used on the labels on the packages containing the product seized taken in connection with the pictorial design on said packages a representation of the presence in said product of any substances known as "coca" and "cola"?

6. Did said product contain any ingredient or substance of appreciable quantity and desirable quality derived from the coca leaves and the cola nuts?

7. Was said product an imitation of any other article or articles?

8. Was said product offered for sale under the distinctive name of any other article or articles?

9. Is "Coca-Cola" the distinctive name of the product in controversy in this case under which said product without any substantial change of formula has been known and sold for twenty years?

J. B. COX,
U. S. District Attorney.

W. B. MILLER,
Special Counsel.

Mr. Miller: Now, if your Honor please, there is one other point before the recess. I have no doubt that distinguished counsel are more familiar with reference to the debate as to the words "added" and "which may render" as they were construed when these laws were under consideration, and I have no doubt they have copies, but I have had, at the expense of some labor and time, prepared excerpts or rather a sort of synopsis from the entire Congressional matter as far as they pertain to the consideration of this bill and especially these particular words of the bill which I think it would be well for your Honor to have, and I will be glad to pass one to adversary counsel and one to your Honor. I understand it to be entirely proper that the interrogation of the chairman of the committee and his fellow members are always proper matters for consideration, and the Court will consider such interrogations and responses as it sees fit in giving them the proper significance.

Mr. Sizer: I understand that your Honor takes judicial notice of all proceedings in committees and the House of Congress in respect to the passage of the bill. We have a publication from the Government Printing Office of a hearing in the committees and in Congress which we will submit to your Honor and refer to in argument.

Mr. Miller: I have these excerpts which pertain to everything and will bring the Court's attention to what was said there and done as regards these words.

The Court: These excerpts will be very helpful. This will be a very material question in the lawsuit. It is my impression, not a conviction at all, an impression from former reading, that the reports of Committees are proper to be considered in determining the construction of

statements made by the Chairman of the Committee in reporting the bill. To what extent you may go further to the statements that were made, I am uncertain. I would be glad to have authorities on that point. It seems proper that we should look at the statements of individual members, but not those of members who were not on the Committee, and those will not be looked at.

Mr. Sizer: I do not think that limitation would be of any great importance in this case because most of the important statements were made by some members of the Committee.

The Court: Do you agree the Court may properly look at the statements made by any members of the Committee?

Mr. Miller: We will not have any controversy about that. I have included them all there, but I believe it is only the report of the Chairman and, second, the answers to the interrogatories that are put to him by his fellow-members — I believe that is the limitation the majority of courts put on this question. But I want to say that I have included — that is, I have endeavored to include — I don't say that is correct, but I have endeavored to include everything so your Honor may take it. Your Honor may have a different view of it.

Mr. Sizer: I will say that we have no objection to your Honor taking all of it. I am willing to say now so far as our side is concerned your Honor can look through the entire proceedings in the Committees and Houses of Congress and anything else your Honor deems material that your Honor may think might shed light on a question.

The Court: I do not like to look further than the Appellate Court would look in reviewing my action.

Mr. Miller: This Court should only look so far as it thinks it ought to look.

The Court: I do not want to look any further.

Mr. Sizer: The Court may look at anything of that kind in arriving at a construction — the Court will take advantage of any source of knowledge — your Honor may go over and look through the different lines of examination of witnesses, how a particular word, if submitted, was discussed, what limitation was suggested, and in that way anything that would shed light on the question ——

The Court: I do not understand it as fully as that — it may not be material ——

Mr. Miller: I think distinguished counsel has had a change of heart since Doctor Vaughan was on the witness stand. We tried to inquire into that very thing, as to what he said before one of these committees.

Mr. Sizer: That is a matter of evidence that you could

not go into — but your Honor will take judicial notice of any questions that were asked there, but you cannot bring a man on the witness stand and examine him here about that — at least, they could not cross-examine him as to what he said on the hearing.

The Court: We will now take a recess for ten minutes.

(Whereupon a recess was taken for ten minutes.)

AFTER RECESS:

The Court: We cannot wait any longer for the translation. I had no idea it would take so long. We will proceed with the rest of the case.

Mr. Miller: We want to recall Howard Candler for a moment.

C. HOWARD CANDLER,

recalled to the stand for further examination, testified as follows:

RECROSS-EXAMINATION,
BY MR. MILLER:

Q. Did your white and colored help use the same toilet room in 1909?

A. No, sir.

Q. You had two separate ones?

A. Yes, sir.

Mr. Miller: That is all I care to ask.

(Witness excused.)

JOHN S. CANDLER,

recalled for further examination, testified as follows:

RECROSS EXAMINATION,
BY MR. MILLER:

Q. By way of refreshing your recollection as to what these analysts of the Coca-Cola Company testified to in 1902, April or May, in the case of the Coca-Cola Company vs. Rucker, I will ask you to refer to page 59 of the transcript I hand you, and state if you can recall from that whether the analyst stated that he found one-four-hundredths of one per cent cocaine content, or whether he found one-four-hundredths of a grain per ounce of the mixture.

A. (Reading.) "I found it was so very slight that it was very difficult to get a purified article of cocaine out of the quantity I had, so I got pure cocaine and got one four-hundredth of a grain. It would take one four hundred glasses to get the usual dose."

Q. I didn't ask you to read that.

A. That was the whole of the answer, and I did not care to read one part of the answer.

Q. I asked you for your recollection based on that as to whether or not that witness, the analyst for the Coca-Cola Company, stated that he found one four-hundredths of a grain of cocaine per ounce in Coca-Cola syrup.

A. I have no recollection other than is there.

Q. Having read that, is it not your recollection now that in your presence and in the presence of the directors and President of the Coca-Cola Company that witness made in substance this statement, namely that he found one four-hundredths of a grain of cocaine per ounce of Coca-Cola syrup?

A. I have no recollection as to who was present, and I have no recollection about what he said except as this refreshes me. I remember the one four-hundredths, as I said the other day, but I do not remember whether he said one four-hundredths of a grain, or one four-hundredths of one per cent. I do not now recollect it.

Q. Having refreshed your recollection, what is your recollection?

A. None except what I get from this book.

Q. Have you any recollection, as refreshed from that book, as to what he said?

A. No, sir. I take it that this is correct, though. I just simply do not recall what he said.

Q. Now, I will ask you if it is not true that as the result of that litigation and that analysis, the Coca-Cola Company made a contract whereby the manufacture of Merchandise No. 5 was given to Doctor Schaefer exclusively, and that one of the conditions of the contract was that cocaine was not to appear in the mixture?

A. My recollection of that is this, that no director, the President or anyone else of the Coca-Cola Company at the time of that trial, had any idea that there was a trace of cocaine in No. 5. When the two chemists in question testified that this immaterial quantity was there, then every member of the Board of Directors of the Coca-Cola Company wanted it out, and it was their purpose in having No. 5 made by the Maywood, New Jersey Chemical Company to get someone who could make it better than we could make it, and if there was a trace as we made it, we wanted it out. So far as the written agreement with Doctor Schaefer is concerned, it does not contain a word that he must get it out.

Q. I think you have argued whereas I asked you a simple question, and that is if it was not one of the purposes

of the Coca-Cola Company, in making the contract with Doctor Schaefer, to transfer the manufacture of Merchandise No. 5 so that cocaine would not appear in the mixture known as Coca-Cola syrup?

A. Our purpose was to get the best flavoring that we could get from the coca and cola by the best method, by the latest process, and in getting it, we of course, did not want any cocaine to be in it, and under his process, he said it would not be.

Mr. Miller: I submit to your Honor as to whether we have had a response to my question.

The Court: I don't think it is responsive. Read the question to the witness, Mr. Stenographer.

By the way, I have a telegram here for Mr. Simmons of the jury. It is sent to me — to him, in care of me.

Mr. Miller: I would like to state publicly to Mr. Simmons, when I get his attention, I would like to state publicly that I had a letter from the Manager of the company with which he is connected, asking me to use my influence to get him excused to attend the County Court at Benton. Of course, it is impossible.

The Court: It is certainly to excuse any juror at this stage of the case.

Mr. Miller: Of course I knew that, but I preferred to make the statement publicly.

(The question last put to the witness was read to him.)

The Witness: It was the purpose of the Coca-Cola Company not to have even a trace of cocaine in it and for that one reason, among others, Doctor Schaefer was employed to make Merchandise No. 5.

Mr. Miller: Now, I move to exclude the two previous answers because not responsive to my question.

The Court: The motion is sustained.

Mr. Miller: That is all we care to ask Judge Candler.

(Witness excused.)

Mr. Miller: Now, referring to pages 2300 and 2323 and 2324, my understanding of the ruling of your Honor was that testimony as to cocoa and chocolate has not been admitted and is excluded under your Honor's ruling.

The Court: You are correct, that is the ruling.

Mr. Hirsch: We now have the deposition translated, and we will proceed to read it.

The Court: The questions are numbered in the deposition, are they?

Mr. Sizer: Yes.

Mr. Miller: The deposition was taken subject to exceptions for incompetency and irrelevancy, your Honor. May

we submit a brief as to such portions as we consider incompetent, or does your Honor prefer to rule on our objections now?

The Court: Well, as you see fit. You may make your objections as the deposition is read.

Mr. Sizer: Then Mr. Candler will read the deposition.

The Court: Please read the number of the question each time so that counsel may note the exception to the question and the stenographer may get it.

Mr. Candler: All right.

(Thereupon Mr. Candler read the deposition of Doctor Oswald Schmeideberg as follows):

(Deposition of Doctor Oswald Schmeideberg, offered at this time by consent on behalf of the claimant and intervenor.)

"Depositions of Dr. Oswald Schmiedeberg, a material witness on behalf of the defendant and claimant in the above case, taken on the twentieth day of March, 1911, at Kehl, Baden, Germany. The said witness, Dr. Oswald Schmiedeberg, aged 72 years, being duly sworn, deposed as follows:

Interrogatory No. 1. State your place of residence and occupation: and state how long you have followed that occupation.

A. I am residing at Strassburg, Alsace, and my occupation is Professor and Director of the Pharmacological Institute in the University of Strassburg, Alsace, since 1872.

No. 2. State the extent of your medical education and training, and what particular branch of medical science, if any, you have made a special study of.

A. I am Doctor of medicine and honorary Doctor of Laws (L. L. D.) of the University of Edinburgh, Scotland, corresponding member of the Royal Society of Medicine, London, and of the Philadelphia College of Pharmacy, Honorary member of the English Physiological Society; honorary and corresponding member of many other Academies and Societies of Science and Medicine in Germany, Austria, Italy, France, Russia, Sweden. My particular branches of medical science are Pharmacology, Materia Medica and Toxicology.

No. 3. Are you the author of any medical works or treaties, and if so, please give a list of them.

A. More than two hundred medical and physiological researches and treatises are executed and communicated by me and under my guidance by a number of younger investigators working in my laboratory.

No. 4. Have you ever made a study of the effects of caffeine on the human system, and have you prepared or pub-

lished any treatises or article setting forth the result of such study and investigation, especially with reference to the caffeine contained in Coca-Cola syrup? If you say that you have prepared or published such treatise, please state when and at whose instance you did so.

A. Among these works there are also some concerning the caffeine and among them a collected description made by me about the whole caffeine group in the Merichte der Deutzchen chemischen Gesellschaft in Berlin, and about the caffeine in my book "Elements of Pharmacology". Particular researches on account of Coca-Cola syrup were not necessary, because the caffeine in this syrup cannot act otherwise and is not to be judged otherwise than the caffeine in general. Such a special research of the Coca-Cola syrup on the physiological action of the caffeine, contained in the same would have pointed to a treatment of the question without knowledge of the matter, and a repeated analysis of the group would have been taken as a quite unauthorized difference against the exactness of the analysis made by Dr. Mallet, of the University of Virginia, and Dr. M. B. Bigelow, of the Department of Agriculture.

No. 5. In what beverages is caffeine found naturally, and to what extent is it consumed in those beverages throughout the world?

A. Caffeine is the constituent upon which depends the significance of coffee, tea and some other food materials. This significance is far more widespread than that of alcoholic beverages. In all parts of the world, coffee and tea, and other beverages containing caffeine, such a cola, Paraguay tea and guarana paste, are made use of by the most widely different races of mankind, by people professing all forms of religious belief, by men and women, by the young, without special restriction, whilst alcoholic drinks are prohibited to Mohammedans by religious rule, and women and children as well as many men, refrain from their use.

No. 6. Are there any diseases or ailments of the human race which can be held to be due to the use of beverages containing caffeine?

A. Notwithstanding the unparalleled wide distribution of these beverages, cases of illness from their use which can be held to be due to their content of caffeine, are not known.

No. 7. Taken in the quantities in which it is found in beverages like teas, coffee, etc., would you, from the observations and investigations which you have made, say that caffeine is a deleterious or harmful substance?

A. Caffeine, therefore, in the quantity in which it is taken with those beverages, may with entire certainty be

set down as harmless, on the basis of the experience obtained on so large a scale during several centuries.

No. 8. In this respect do beverages containing caffeine differ from alcoholic drinks and from tobacco?

A. In this respect the beverages containing caffeine are quite essentially distinguished from alcoholic beverages and from tobacco, the misuse of which so easily gives rise to cases of poisoning and of illness.

No. 9. In what way is your opinion as to the harmfulness of these beverages confirmed and explained?

A. The harmlessness of caffeine in the beverages under consideration is confirmed and explained by the nature of its action. On this action depends the significance of these beverages for the human organism, and it has led in all parts of the earth, both civilized and savage people, to instinctively discover and use as beverage all plants which contain caffeine or the analogous theobromine of similar effect.

No. 10. Are the effects of theobromine similar to those of caffeine?

A. The theobromine contained in cocoa and chocolate has quite similar effects on the body as the caffeine.

No. 11. Upon what parts of the human system does caffeine act, and in what way?

A. The action of caffeine, with which only we have here to do, concerns at the same time, in a quite peculiar way, the central nervous system and the muscular system on which the movements of the body depend.

No. 12. If the nerves and muscles become fatigued through exhausting or long continued exercise in what way is it possible to continue their further exercise?

A. When muscles and nerves are fatigued by severe or long continued activity, activity can be continued, if at all, by the most strenuous exertion of the will.

No. 13. How and in what way does caffeine, in the quantities in which it is taken in the beverages referred to, affect the muscles and nerves and intellectual faculties with respect to their ability to withstand fatigue?

A. Caffeine, in the quantities in which it is taken with beverages, so acts upon the nerves and muscles that the feeling of fatigue disappears, while the stimulus of the will more easily reaches the muscles and the supply of energy of the latter can be more easily and efficiently used than in the condition of fatigue without caffeine. Under the influence of the latter also the more strenuous intellectual activities are more easily prolonged, and the feeling of mental lassitude is less perceptible.

No. 14. Does caffeine, in view of its effects as heretofore

explained by you, act as a means of refreshing the nerves, mind and muscles?

A. Caffeine is a means of refreshing bodily and mental activity, so that this may be prolonged when the condition of fatigue has already begun to produce restraint and to call for more severe exertion of the will, a state which as is well known is painful or disagreeable.

No. 15. Are the muscles and nerves directly affected by the use of caffeine, as commonly taken in beverages, or are they in all cases necessarily exerted when caffeine is taken in such quantities?

A. The caffeine as commonly taken in beverages, does not spure the muscles directly to increased activity, therefore they are not necessarily exerted when caffeine is taken in such quantities.

No. 16. If you say that the use of caffeine, in the quantities stated, does not directly affect the nerves and muscles, in what manner and under what conditions does it affect them, indirectly, if at all?

A. The caffeine, in quantities stated, affects the muscles and nerves indirectly by increasing their irritability and they respond more easily to every irritation.

No. 17. Does the use of caffeine, in the quantities stated, enable the muscles and nerves to respond more readily to the impulses of the will? And would its use in the quantities stated, induce activity of the nerves and muscles without the co-operation of the will?

A. The use of caffeine in quantities stated in consequence of increased irritability enables the muscles and nerves to respond more easily to the impulse of the will. Its use in the quantities stated would not induce activity of the muscles and nerves without the co-operation of the will.

No. 18. If no work is to be done after the taking of caffeine, as in tea or coffee, will the nerves and muscles remain passive, as if no caffeine had been taken?

A. If after the use of coffee or tea no work is done, as for example after taking coffee at the end of a dinner, muscles and nerves remain quiet as if no coffee had been taken. In such cases the pleasure which good coffee and tea procure are decisively in favor of their use.

No. 19. From your experience and investigation of the subject, would the continued use of caffeine, in the form of beverages, cause chronic diseases or other harmful effects on the human system?

A. This character of caffeine action makes it plain that these beverages do not injure the organism by their caffeine content, and especially do not by continued use cause

any chronic form of illness, as alcoholic beverages so easily do.

No. 20. Are there any ingredients in tea and coffee aside from caffeine which might affect the system, and if so, what they are and what effects might they produce?

A. If strong coffee and aromatic teas, especially the so-called green kind, produce on some persons agitation so that for instance after the use of these beverages in the evening such persons suffer at night from sleeplessness this does not depend upon the caffeine, but upon the ingredient from which the aroma and pleasant taste of well prepared coffee and tea are derived. There are persons who can not in general bear tea or coffee, while Paraguay tea, with its less agreeable taste, suits them well in spite of its containing caffeine.

No. 21. From your experience and the facts obtained by experiment, state if you can do so whether the amount of caffeine taken daily in the course of a lifetime by the habitual user of tea and coffee in the quantities in which it is ordinarily taken is injurious to health, or produces either acute or chronic poisoning, or weakens the body, or predisposes it to disease.

A. Experience and the facts obtained by experiment make it indisputable that the quantities of caffeine which are for the most part taken in with coffee or tea used daily for a whole life time are non-injurious to health, since they neither give rise to acute or chronic poisoning, nor weaken the organism so as to dispose it to attacks of illness.

No. 22. According to your experience what is the amount of caffeine usually taken by the user of tea or coffee per diem? And state if these quantities are in any way injurious or harmful?

A. A small cup of coffee of 150 ccm. — five ounces — which has been prepared from 15 grm. — 230 grains of coffee beans — contains 0.1 to 0.12 grm. — 1.5 to 1.8 grains of caffeine, and the same amount is contained in a cup of the infusion prepared from 5 to 6 grms. — 75 to 90 grains of tea leaves. If it be assumed that a man daily in the morning, at noon or in the afternoon and in the evening drinks altogether five cups of coffee or tea, or partly coffee and partly tea, he takes in this 0.5 to 0.6 grm. — 7.5 to 9.0 grains of caffeine. These moderate quantities are thoroughly harmless. Many persons, especially women, in countries where tea-drinking is wide spread, may easily bring the number of cups to double or even several times these figures. Let us assume that the maximum amounts to ten cups of tea or coffee or of both together. These contain 1.0 to 1.2 grm. — 15 to 18 grains of caffeine. Even

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such doses cause no disturbance of health if they be taken in this manner.

(The latter part of the answer to Interrogatory No. 22 and the Interrogatory No. 23 and answer thereto were excluded and will be found on page ——.)

No. 24. Assuming that a glass of a beverage known as Coca-Cola, as served at soda fountains, contains about one ounce of syrup, containing about 1.21 grains of caffeine, mixed with six or seven ounces of water; how many glasses of this mixture could be taken daily without any danger of detriment to the health on account of the caffeine contained therein?

A. According to the communications which have reached me about 30 grm.—one ounce of Coca-Cola, syrup, containing about 1.21 grains of caffeine, is used to a glass of about 210 ccm. of the beverage. From the stated quantities of caffeine which are taken daily by use of coffee or tea follows in the most positive way, that 200 to 400 grm. Coca-Cola syrup or 1,400 to 2,800 ccm. — 6 2/3 to 13 glasses of the beverage might be taken daily without any fear of injury to health from the quantity of caffeine contained therein.

No. 25. Has any analysis of Coca-Cola syrup been submitted to you, and if so, by whom were you informed that said analysis had been made, and state the contents of the syrup as shown thereby.

A. Coca-Cola syrup contains, by the accordant analyses of Dr. Mallette, of the University of Virginia, and Dr. Bigelow, of the Department of Agriculture, 0.19 to 0.24, in the average 0.22 or in round number 0.25 grm. — 3.8 grains of caffeine in 100 grm. — 1,540 grains of syrup.

No. 26. Would there be any difference in your opinion between the effect on the human system of Coca-Cola syrup, composed as stated in your last answer, and a corresponding quantity of tea or coffee, and if so what would be the difference and to what would it be attributable?

A. In certain respects the Coca-Cola syrup is even more harmless than the corresponding quantity of coffee or tea, since it does not, like these, produce agitation and therefore cause sleeplessness.

No. 27. Is there any advantage to the human race in encouraging the use of beverages containing caffeine, and if so state what it is.

A. Not only can no well-founded objection be urged against the manufacture of beverages containing caffeine by the introduction of this in any form, but rather should the extension of such manufactures be regarded with favor in the interests of the public welfare. Undoubtedly alco-

holic drinks belong to the most injurious beverages and the contest against their use and especially their misuse, is thoroughly justified. This can be most successful only by seeking to replace alcoholic beverages by other harmless beverages. Among such harmless beverages the most suitable with which to take up and carry through the war against alcoholic drinks, are coffee, tea, cocoa, chocolate, and in general all natural or artificial beverages which contain caffeine or theobromine on account of their advantageous and agreeable effect above described. Carbonated waters, for example, which are taken with pleasure for their refreshing action, will not fulfill the purpose in question, since they exert none of the special effects upon the organism that tea, coffee, etc., do. In the contest with alcoholic drinks it is of importance that the beverages which are to replace them shall be harmless, contain caffeine or theobromine and also actually be consumed upon a large scale. In this way Coca-Cola may be of value.

No. 28. Do you know or can you state any other matter or thing which may be of benefit or advantage to the parties at issue in this cause, or either of them, or that may be material to the subject of this your examination, or the matters in question in this cause? If so, set forth the same fully and at large in your answer.

A. I do not know of anything to add.

CROSS INTERROGATORIES.

Q. No. 1. Are you acquainted with the substance that is generally recognized by the laity and the profession and spoken of as caffeine?

A. I am not aware of what the laity is thinking about caffeine. The opinions of the professional men are familiar to me.

Q. No. 2. State whether or not it is a drug.

A. Yes, caffeine is also a drug.

Q. No. 3. State whether or not it is a food in any sense, if so what?

A. The caffeine is the active constituent upon which depends the significance of coffee and tea as soft drinks. It relieves the activity of the body when the same is fatigued.

Q. No. 4. Is caffeine prescribed for healthful persons?

A. For healthful persons the pure caffeine is not so prescribed as for sick ones.

Q. No. 5. If your answer is yes, why, and if your answer is no, why not?

A. Healthful persons take the caffeine in the form of foods of different kind and do not need therefore pure caf-

feine.

Q. No. 6. What are the most prominent effects of caffeine on the human system?

A. The caffeine increases in the doses which are in consideration the irritability of the nervous system and at the same time endows the muscles with capacity for increased activity.

Q. No. 7. Does it tend to produce sleeplessness and wakefulness sometimes called insomnia?

A. In quantities in consideration pure caffeine does not effect sleeplessness. Sleeplessness, wakefulness and insomnia are synonymous conceptions.

Q. No. 8. Suppose a nervous individual, or growing child, during the period of adolesence, or high-school pupil doing hard work, should repeatedly take doses of caffeine in the form of a soft drink, containing say 1.20 gr. of caffeine, what would be the result?

A. To nervous persons, growing children, during the period of adolesence, as well as high-school pupil doing hard work even repeated doses of 1.20 grains of pure caffeine taken in the form of soft drinks would be less injurious than the corresponding quantities of coffee or tea. If these also would be injurious depends upon the individuality of the persons.

Q. No. 9. Is it not well recognized that children should refrain from taking stimulants like caffeine?

A. Coffee and tea are not given to children because they have a stimulating action. This action does not depend upon the caffeine but upon other constituents. The caffeine is not a stimulant.

Q. No. 10. If caffeine produces sleeplessness or wakefulness and a child or nervous individual takes doses as above from day to day, what might be the tendency; and what the effect of such a course on the nervous system?

A. Nervous persons are sometimes given caffeine when they suffer from migraine. A daily use of the doses here under consideration would not be injurious, but would have no purpose. As to what influence the daily use of pure caffeine would have on children experience is wanting.

Q. No. 11. If this stimulation is continued from day to day, would it not have a tendency to lower the vitality of the individual? If not, would it increase the vitality, and if so, why and how?

A. In question No. 9 is mentioned that the caffeine is no stimulant, as it is sometimes taken for. The small quantities of caffeine will have no influence in the manner mentioned.

Q. No. 12. Suppose an individual afflicted with tuberculosis should consume a soft drink containing 1.21 gr. caffeine from day to day; would the influence of such a beverage be beneficial or otherwise? If you answer in the affirmative, give reasons why, and if in the negative state the reasons.

A. The daily use of beverages containing 1.21 grains of caffeine will not be injurious to those afflicted with tuberculosis, provided these drinks do not contain at the same time irritant substances, such as strong coffee and green Chinese tea.

Q. No. 13. Is or is not the condition frequently known as nervousness the forerunner of many diseases?

A. The caffeine causes, in the quantities herein considered, no nervous conditions, and if these are recognized as forerunner of diseases, the caffeine has nothing to do with it.

Q. No. 14. What do you understand by the term "metabolism"?

A. By metabolism we understand the transformation of food materials and organ constituents in the organism.

Q. No. 15. Does caffeine influence metabolism favorably or otherwise?

A. Caffeine in large doses influences the metabolism only indirectly; in the quantities herein considered not at all.

Q. No. 16. Does caffeine influence favorably or otherwise carbohydrate metabolism?

A. What is said in answer 15, concerns also carbohydrate metabolism.

Q. No. 17. Does caffeine in any way influence the important constituents eliminated in the urine, and if so, why, and what is the significance of it?

A. The caffeine is used in diseases as a diureticum, and has in this respect an influence on the excretion of the urinary constituents, but not on their formation.

Q. No. 18. State from your own knowledge, experience and observation if the administration of one or more glasses of a soft drink containing from 1.21 to 1.25 grains of caffeine customarily served with carbonated water at soda fountains with no ingredient neutralizing the effects of caffeine might be or would become deleterious to health.

A. Taken in the mentioned quantities with carbonated water at soda fountains, the caffeine also in this form is not injurious. Substances which neutralize the effects of the caffeine do not exist.

Q. No. 19. Would one or more glasses of a beverage of the above character be favorable or otherwise to meta-

bolism?

A. These drinks, would, if they generally do it, act by the quantity of water taken, on the metabolism; and not otherwise.

Q. No. 20. If your answer to the above is "Yes", give reasons why, and if in the negative give reasons.

A. The answer to this question is the same as that given in question No. 19.

Q. No. 21. Is or is not caffeine a stimulant to the nervous and muscular tissues of the body?

A. The caffeine is not a stimulant like for instance camphor, it raises the excitability of the nerves, which is not to be confounded with stimulant action. It affects the muscles in the same manner as described in the answer to question No. 6.

Q. No. 22. Is caffeine beneficial or otherwise to the human system of a healthful person; and why?

A. To healthful persons, the caffeine can be beneficial, because it is able to diminish the state of fatigue.

Q. No. 23. Having once established the necessity of a stimulant for relieving fatigue, does it or does it not become necessary in many instances to repeat stimulation in order to overcome the condition?

A. If there is no material body, or mental fatigue, the caffeine action is not evident. There is no necessity to diminish the fatigue by caffeine, instead of removing it by rest and recovery.

Q. No. 24. Is or is it not a fact that cocaine relieves fatigue, and stimulates the individual?

A. The cocaine taken internally could remove or soften the sensation of fatigue, but not increase the activity like caffeine.

Q. No. 25. Strychnine is a stimulant to the nervous system, is it not?

A. Strychnine increases, in small doses, the irritability of certain parts of the brain, and therefore is sometimes used for paralysis. In greater doses it causes paralysis. It has no influence on the muscles.

Q. No. 26. Are the stimulations of cocaine and strychnine beneficial or otherwise to a healthful person?

A. Cocaine and strychnine are not used on healthful persons. The misuse of cocaine in the sense as morphine is used by the morphine fiends, causes very bad consequences.

Q. No. 27. Would you consider the addition of caffeine to a syrup to be used in the manufacture of a soft drink to be dispensed promiscuously to the general public at soda fountains beneficial to health, or otherwise?

A. This question I have answered very particularly as will be found in question No. 27 of the interrogatories of the defendant's attorney.

Q. No. 28. Dr. H. A. Hare, in his text-book entitled "Practical Therapeutics," 13th Edition, page 144, in speaking of the "Untoward Effects" of caffeine, says:

> "Caffeine often produces so much insomnia given in cases of cardiac disease that its use has to be discontinued. If its use is persisted in, it may produce a condition of delirium closely resembling that of alcoholism; and if too large doses are used, or it is too frequently repeated, it may cause a decrease in urinary flow by causing spasm of the renal vessels. The writer has also seen a marked rise of temperature follow its use in the doses of 2 grains (0.12) three times a day, but this is unusual. In certain persons the habitual use of coffee may cause insomnia, tremors, palpitation, tinnitus, aurium, gastralgia and emaciation."

Do you agree with the views as set forth by Dr. Hare? If your answer to the above is "no", give your reasons specifically and in detail.

A. Caffeine acts very well on persons with heart disease when it is used in proper cases. In other cases of heart disease it does not act wholesome, and even can change the condition of the sick for the worse, by sleeplessness and other grave symptoms. The exciting action of strong coffee and tea is imputed by many authors to the caffeine. See the answer to question 7 of the cross-interrogatories and the answer to question 20 of the interrogatories.

Q. No. 29. State whether or not caffeine is poisonous in its tendencies?

A. Caffeine is like many other substances, which are used in daily life as for instance spices, mustard, in great quantities, poisonous, but not in the quantities which are herein under consideration. Particularly, coffee, tea and Coca-Cola cannot be considered poisonous. Arsenic is very poisonous. Gibbs and James found in California wines 0.04 to 0.20 miligramm arsenic in one liter, and in claret wine from the eastern section of the United States even 0.4 milligramm in one liter. Nevertheless such wines cannot be considered poisonous or even as a poison, otherwise its sale should be prohibited.

Q. No. 30. Assuming that caffeine is served in quantities of from 1.21 to 1.25 grains per glass promiscuously in soft drinks, at soda fountains, would you or would you not consider and believe that it might be injurious to the public health?

A. In stated quantities the mentioned drinks would not be injurious to the public health, but rather useful. See the answers to the questions Nos. 26 and 27 of the interrogatories.

Q. No. 31. From your knowledge and experience does caffeine increase the toxcity of other drugs such as, for example, acetanilid, a common ingredient of headache mixtures?

A. In such a mixture every substance acts for itself, and the degree of their action depends upon the quantity of each ingredient.

Q. No. 32. In your experience is the toxicity of caffeine increased in an individual receiving an insufficient amount of food, that is, in a state of greater or lesser starvation?

A. The activity of caffeine would not be increased in a state of starvation of the individual.

Q. No. 33. In your experience does caffeine stimulate or inhibit the putrefaction changes in the intestinal canal?

A. Caffeine does not reach the parts of the intestinal canals, where the putrefaction takes places, and in this regard it is not to be considered.

Q. No. 34. Has or has it not a tendency to relieve fatigue?

A. For the answer to this question see the interrogatories 13 to 18 and cross-interrogatory 3.

Q. No. 35. If your answer to the above is yes, describe in what manner it relieves fatigue, and if your answer to the above is in the negative, give your reasons why.

A. For the answer to this question see the interrogatories 13 to 18 and cross-interrogatory 3.

Q. No. 36. If caffeine relieves fatigue and by so doing enables the individual to do more work, is the work done at the expense of the body.

A. For the answer to this question see interrogatories 13 to 18 and cross-interrogatory 3.

Q. No. 37. What is the cause of fatigue?

A. The cause of fatigue is the consumption of substances in the muscles and nerves by its action.

Q. No. 38. If fatigue is due to the conditions you have described, is it or is it not true that a stimulation of the nervous and muscular system will increase the agents which cause fatigue and proportionately lower the reserve forces of the individual?

A. See the answer to this question in interrogatory 13.

Q. No. 39. Will or will not the repeated stimulation with the results set forth above be more or less of a drain on the physiological reserve of the individual?

A. The consumed substances must naturally be re-

placed by food.

Q. No. 40. Is it or is it not a fact that the lowering of the physiological reserve of the individual renders him more liable to disease and less able to do efficient work?

A. When the sufficient replace by food takes place, no decrease of reserve substances appears, otherwise manual labor would be injurious, because it is necessarily connected with a great consumption of the physiological reserve materials.

Q. No. 41. If in your examination in chief you say you have written any treatise touching caffeine or dealing with it, please file a copy thereof as a part of your deposition.

A. See the answer to this question in the interrogatories Nos. 3 and 4.

Q. No. 42. If you answer in chief that you have had occasion to write any article or treatise dealing with caffeine as contained in Coca-Cola syrup, please file a copy of such article or treatise and state occasion for your writing or publishing the same.

A. Outside of this opinion I have written nothing on Coca-Cola.

Q. No. 43. What connection have you with the manufacture or sale of Coca-Cola, and if you say you have none, who induced you to write or publish the article or treatise and for what purpose?

A. I have no connection in the manufacture or sale.

Q. No. 44. Have you had any conference with any representative of the Coca-Cola interests or Coca-Cola Company, and if so, with whom and what was the date of your last conference?

A. No, I do not know any person of the Coca-Cola Company.

Q. No. 45. When and under what circumstances were you advised your deposition would be desired in this controversy, and by whom?

A. Through an acquaintance of mine, Dr. Louis Schaefer, President of the Schaefer Alkaloid Works, of Maywood, New Jersey, who wrote me a letter in the fall of 1910.

Q. No. 46. Is Coca-Cola used extensively in your section and if so, for how many years has it been used?

A. I know nothing about the use of Coca-Cola in my country.

Q. No. 47. If you state in answer to Question 23 in chief that there is prescribed a "maximum daily dose of caffeine," state for what ailment or under what conditions such maximum daily dose is prescribed, and for what character of person.

A. The maximum doses of caffeine mostly prescribed by migraine.

Q. No. 48. Is it not true that some systems will tolerate more caffeine than others, and that as a rule adults will tolerate more than children?

A. Like against other remedies, some individuals probably are more tolerant against caffeine than others. Children are in general less tolerant than adults. But there are no particular experiences in regard to caffeine along these lines.

DR. OSWALD SCHMIEDEBERG.

(The following proceedings were had after the reading of Question 19 on direct examination:)

Mr. Miller: We object to that question and answer. We did not bring coffee into this case. We tried to keep it out.

The Court: But I let it in.

Mr. Miller: Now they are trying to make it appear that this is not as harmful as something that they brought in themselves. My point is, this is not a comparative case. We are not comparing this with anything else, and they brought coffee and tea into the case, and they are now trying to show that this is not as harmful as those.

Mr. Sizer: Not at all.

The Court: The question asked was whether the use of caffeine in beverages was harmful.

Mr. Miller: Well, see what the answer is.

(The answer was thereupon read.)

Mr. Miller: And to that portion of the answer that deals with alcoholic beverages, I say that is not competent. I do not think that is a matter of inquiry; because this does not do as much harm as something else does not make it competent.

Mr. Sizer: I submit it is not improper for the witness to illustrate the effect of these beverages as contrasted with other beverages.

Mr. Miller: If counsel insists upon it, I will withdraw the objection.

The Court: Very well.

(The reading was thereupon proceeded with, and after the reading of Question 20:)

Mr. Miller: Now, I object because I say we have not been permitted to introduce certain evidence as to the results of tea and coffee because it has been shown that they contain certain other things that might be injurious.

The Court: You are mistaken. The proof was excluded because it did not respond to the question asked the witness on his examination.

Mr. Miller: Now, they ask whether or not there were certain ingredients in tea and coffee which would be more harmful than the Coca-Cola.

The Court: No. As I gather it, the point is this: You say caffeine is injurious; they say no, it is not, because everybody takes tea and coffee and are not hurt. You reply with cases where tea and coffee drinkers have suffered, and now they want to show that the injury to the tea and coffee drinkers was due to other things than to the caffeine in the tea and coffee.

Mr. Miller: We want to go on record as excepting, because we were not permitted to introduce those witnesses.

The Court: I did not intend to re-rule, and I do not think I did rule, that you could not produce any experts to express an opinion about tea and coffee. I have never ruled that out except that on the cross-examination of a witness who was expressing an opinion about the injurious effects of caffeine I held that you could not cross-examine him by showing articles written by men not talking about caffeine, but about tea and coffee. That is all I ruled. I never meant to preclude the Government from taking up the subject of tea and coffee.

Mr. Miller: I quite understand the ruling.

(After the answer of Question 22 of the Direct Examination:)

Mr. Miller: To the last part of that, as to the Pharmacopœial matter, we object.

(The Court sustained the objection.)

Mr. Asa Warren Candler: Twenty-three, question and answer, would also be ruled out then for the same reason.

(The latter sentence of the answer to Question 22 and Question 23, and the answer thereto, which were ruled out, were as follows:)

"In agreement with this is the direction of the Pharmacopœia of the German Empire that the largest daily dose of caffeine should not exceed 1.5 grm.—23 grains."

"Q. 23. What is the maximum daily dose of caffeine according to the Pharmacopœia of the German Empire?"

"A. The daily dose of caffeine according to the Pharmacopœia of the German Empire is 1.5 grm.—23 grains."

(After Question 24:)

Mr. Miller: I object to that without the communications are in evidence. That is the primary evidence and he should be required to produce it.

The Court: I do not know what the answer is; it is merely that one ounce of Coca-Cola is mixed with certain things, I understand.

(After reading of answer to Question 24 on the direct

examination:)

Mr. Miller: I object to part of that answer as argumentative. He answered in the first few lines that it would be harmful and then he proceeds with an analysis, and that would be incompetent.

Mr. Sizer: He is asked how much of that beverage might be taken directly without fear of injury to health, and he says six and a half ounces.

Mr. Miller: I do not care for that, but what he says he bases it on.

Mr. Sizer: He just shows his information as to what it contains.

The Court: I think the exception should be overruled. The witness is just stating what he did.

(After the entire deposition was read:)

Mr. Sizer: Your Honor will notice that they cross-examined the witness about the pharmacopœial dose, and now I ask that his answer on direct examination, which was excluded, should be allowed.

The Court: I have heretofore held that where a deposition is taken away from the Court and there is no chance for the Court to rule on objections, that counsel may make objections and not read the cross-examination in reference to that. Counsel cross-examine subject to the right to not read it if they do not want to.

Mr. Sizer: But he read the answer. The point is this: We ask what is the pharmacopœial dose.

General Cox: And we didn't ask anything on cross-examination about that.

Mr. Sizer: Yes; on cross-examination counsel for the Government ask in what manner that dose is prescribed.

Mr. Candler: It was in Question 47 of cross-examination, and then you can look back and see Question 23 in chief.

General Cox: We ask for the maximum dose he prescribed.

Mr. Sizer: No, not what he prescribed.

The Court: Gentlemen, I will look at it—let me see it. Question 47 refers back to Question 23, which does refer to the pharmacopœial dose. If the Government wants the answer in and reads it, that admits Question 23.

Mr. Miller: But we do not want it in.

The Court: But General Cox read it and says that you want it in.

General Cox: I didn't say that—it was read, but I thought it referred to the dose he prescribed.

The Court: No, it does not. Then it is understood that the Government does not want to read that answer 47

and they have a right not to read it, and the answer to 47 is excluded. The answer on its face does seem to refer to his prescription, but he referred back to the question on direct examination, which shows differently.

J. L. LYNCH,

recalled by the Government in rebuttal, testified as follows:

RE-EXAMINATION,

BY MR. MILLER:

Q. Mr. Lynch, I will get you to state if you heard the testimony of Mr. Howard Candler in this case.

A. No; but I read it.

Q. I will get you to state whether or not there was any cheese cloth strainer over the pipe or that portion of the container from which the Coca-Cola syrup was admitted at the time it was being transmitted and transferred into the barrels when you were in this factory just prior to this seizure and when you were last in the factory prior to the seizure.

A. There was not.

Q. Now, how were these pipes that extended from the basement—I mean, from the first floor, the floor you went in on when you went in from the street going up the steps that led from there down in the basement constructed with reference to the floor itself?

The Court: Is that diagram still on the blackboard?

Mr. Sizer: Yes, it is under there.

The Court: I suggest that he refer to that, so as to facilitate the examination. Turn those others back. I think a copy of that diagram ought to be put in the record.

Mr. Sizer: We will have a copy made by Mr. Candler and have it submitted to adverse counsel and put in the record. Take that tree off of there, Mr. Lynch.

Mr. Miller: Yes, but don't destroy that one, please.

BY MR. MILLER:

Q. I will ask you to state, Mr. Lynch, how these pipes were constructed with respect to the floor which surrounded them.

The Court: Which pipes?

Mr. Miller: I am talking about the pipes which led to the first floor, or what is known as the first floor, that you enter on when you go from the street down into the basement which contains a mixing tank and the containers.

The Witness (indicating): This pipe here and this pipe here went through the floor. Neither one of them were tight.

BY MR. MILLER:

Q. You mean by "this pipe here and this pipe here," what?

A. This pipe, the outlet of the syrup tank on the first floor; this here connects with the funnel and goes down into the mixing tank. Neither one of these pipes were tight in the floor; that is to say, they were not made waterproof. Any water on this floor would go down through there. The other tank does not show here that that was piped, and there are various water pipes coming up through this floor, too.

Q. Now, when you speak of the tank on the first floor, do you mean the kettle, the cooking kettle?

A. No; there is a patent cooling tank which was sometimes used when they were rushed for Coca-Cola syrup in addition to these open tanks in the basement. This was not used except when they were crowded, because, as it was stated to me, it was not as economical as this was.

Q. Does that picture on the blackboard, prepared by Mr. Howard Candler, show all the pipes that lead from or extend to the first floor down to the basement where the mixing and containing tanks were held in suspension?

A. As I remember it, the toilet would be situated right about there (indicating). Those pipes went through that floor, too.

Q. State whether or not that diagram there shows all the tanks that—I mean, all the pipes, that led from one of these floors to the other.

A. No, sir.

Q. How many more tanks—I mean pipes—were there that led from one of these floors to the other?

A. Well, you could not see—several pipes came up through that floor.

Q. Now, state whether or not both pipes were tight, tightly surrounded by the floor, and if you made any observation in that respect.

A. They were not.

Q. Now, what would be the effect or result if water would be turned loose on that first floor with a hose as to where the water would go finally by the force of gravity?

A. It would go right down in the basement floor, the floor holes here (indicating).

Q. State if you know whether or not any portion of it would go into the tanks below.

A. I could not say, Mr. Miller.

Q. State whether or not there was anything below the first floor surrounding these tanks—these pipes, I mean—that would have prevented the water running down or

dropping down from the first floor if it had been turned in on the first floor with a hose.

A. There was not.

Q. How frequently were you in there prior to this seizure, Mr. Lynch?

A. I was in there—in that factory, from July every week except one—from about the middle of July until that seizure was made. I was in there every day in the week, and then later on two or three days in the week.

Q. Were there ever any wash days—that is, water used or sprayed by the hose, so far as you observed?

A. No, sir.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. Do you say they had a water closet right over the syrup tank?

A. No, sir.

Q. Well, you pointed right over the syrup tank.

A. No. I could not show the perspective there.

Q. Now, Mr. Lynch, didn't Mr. Miller ask you where that toilet was, and didn't you put your finger right over the syrup tank?

A. I didn't mean to give that impression, that the toilet was over the soda—I mean, over the syrup tank.

Q. But that is where you pointed it.

A. Because it was not drawn well—I stated over here (indicating).

Q. Now, isn't it a fact, when Mr. Miller asked you where that water closet was, that you put your finger right up there over the top of the syrup tank?

A. I didn't intend to have put it over the syrup tank.

Q. Well, why didn't you say—didn't you leave the impression in answering, and didn't you put your finger right over the syrup tank?

A. Yes, sir, without any idea of that at all.

Q. Well, as a matter of fact, it is not there at all?

A. It is over here (indicating).

Q. Well, why didn't you state when you were asked where the water closet was, that it was to one side of the building and away off from the syrup tank—that is a fact?

A. Yes, away from this syrup tank, you mean?

Q. Yes, from any of them?

A. No, right here in reference to this syrup tank—with reference to the cooling tank—it was not very far from that cooling tank; no, sir.

Q. It was away over under the elevator, on that side?

A. That cooling tank is not shown; that plan does not

show the relative position of the cooling tank.

Q. And your finger did not show the relative position of the water closet and the tank?

A. I didn't mean to convey that idea, that it was there.

The Court: Well, that is enough about that.

BY MR. SIZER:

Q. How lately were you in that factory?

A. I was in there last week.

Q. You went down last week?

A. Yes, sir.

Q. And did you go into that factory?

A. Yes, sir.

Q. Well, that factory is operated by another concern than the Coca-Cola Company now?

A. It is not in operation.

Q. Closed entirely?

A. Yes, sir.

Q. Did you go through it?

A. Yes, sir, I did.

Q. Well, it has been operated by another soft drink plant since the Coca-Cola Company left it?

Mr. Miller: I object to that.

The Court: The objection is sustained.

Mr. Sizer: He has been down there to see the situation, and I wanted to show that since the Coca-Cola Company operated there that the plant has been operated by a different concern.

The Court: I do not understand that the witness has testified as to conditions now, but if he has, it would be incompetent.

BY MR. SIZER:

Q. Why did you go down there last week?

A. I was in Atlanta on other business and there had been contradiction about this toilet room, and one of your witnesses stated that there was one upstairs and one somewhere else, and I knew there were two there.

Q. You went down to ascertain the condition of the toilet room?

A. No, sir.

Q. What did you go there for?

A. I was in Atlanta on business and went down to that factory.

Q. You went to that factory for that purpose?

A. Yes, sir.

Q. And you are testifying here today from what you found there last week?

A. No, sir; when the Coca-Cola Company operated it.

Q. Well, what did you go down there for last week?

A. To see whether possibly there might have been some change in the toilet arrangements from the time I was there until the present time.

Q. Well, as a matter of fact, it has been a year and a half since this seizure took place?

A. No, sir, not a year and a half since I was down there.

Q. Well, the Coca-Cola Company did not remain in that factory but a very few months after this seizure?

Mr. Miller: I object to that.

The Court: He seems to be testifying as to things he saw in the last few days.

The Witness: I did not mean to.

The Court: You did convey that idea—you said you had been there a good many times since the seizure.

BY MR. SIZER:

Q. Is it a fact that the Coca-Cola Company did not remain there but a few months after the seizure, and since that time another soft drink concern has been in there operating that plant?

A. I don't know how long they remained there.

Q. Well, you do know about another soft drink concern being in that factory?

A. No, sir—

Q. Do you mean to say you didn't know there was another concern in there?

A. Yes, sir.

Q. You have been around there inspecting the plant while the other concern was running it?

A. Yes, sir, I have.

Q. Now, you say there are two toilet rooms or closets, one of them is down in the basement in another room, this one in which this mixing tank is surrounded by—isn't it?

A. Well, yes.

Q. You were there last week?

A. Yes, sir.

Q. Now, you were there last week?

A. Yes, sir.

Q. In a different part of the basement?

A. Yes, sir.

Q. And it has got a fire wall between the basement in which this mixing tank is located and the room in which the closet is located?

A. I do not know whether it is a fire wall.

Q. Well, it is a forty-inch wall?

A. No, it is a sort of arch arrangement.

Q. A forty-inch wall?
A. I don't know.
Q. Has it not got a fire door, a double door, a door on each side of the wall?
A. I don't remember.
Q. You didn't examine that when you were down there last week?
A. No, sir, I did not.
Q. Well, you do remember seeing distinctly about that arch?
A. I remember the arch. I don't remember opening any doors going in from your basement where your mixing tank was to the toilet room.
Q. You don't remember that?
A. No, sir.
Q. But you do remember the arch there?
A. Yes, sir.
Q. It is absolutely impossible for you to remember whether there is one door or two doors?
A. I don't think there are two.
Q. Was there any door?
A. There could have been.
Q. You don't remember?
A. No, sir.
Q. And although you were there last week?
A. Yes, sir.
Q. And you saw no strainer on the pipe?
A. What pipe are you talking about?
Q. The funnel that went into the barrel.
A. You mean, any strainer on the pipe—I was not asked that question. I was asked about the arrangement by which the syrup was filled into the tank from the barrel.
Q. Now, do you mean to say that there was no strainer on that funnel that went down from the top of the barrel?
A. I said there was no cheese cloth.
Q. How do you know?
A. I paid particular attention to it.
Q. What was there on it?
A. Nothing at all.
Q. Nothing at all on it?
A. No, sir.
Q. How many times did you see the barrel—
A. (Interrupting) Well, I saw it several times.
Q. And when was it that you examined that funnel to see whether there was any cheese cloth on it or not?
A. When I went in to make the inspections.
Q. Which ones?
A. The first and second ones.

Q. Did you make it on every inspection you were there?
A. No, sir.
Q. Well, they used the same funnel all the time?
A. That I don't know.
Q. Do you know whether they inspected all the funnels or not?
A. The funnel I say they used was to fill the barrels; no cheese cloth on it.
Q. Did you see the funnel sticking in the barrel?
A. Yes, sir.
Q. Did you take it out?
A. That was not necessary.
Q. I say, did you take it out?
A. I looked into it.
Q. Did you take the funnel out and look at it to see if there was any cheese cloth there?
A. No, sir.
Q. You looked at it down through the barrel and did not see the cheese cloth?
A. Yes, sir.
Q. And it is on that kind of inspection that you undertake to come here and swear that there is no cheese cloth there?
A. I swear that there was no cheese cloth there used on that funnel.
Q. And so it is on each particular one of these trips you went and looked down through that funnel?
A. When I made the two sanitary inspections.
Q. How far apart were those two?
A. One in July and one after this shipment was made.
Q. And you looked through the funnel, down through it?
A. Yes, sir.
Q. Well, it was dark on the inside of the barrel?
A. On the inside of the barrel?
Q. Yes; there was no light on the inside of the barrel?
A. No, sir.
(Witness excused.)

Mr. Miller: We will call Doctor Kebler back to the stand.

DR. L. F. KEBLER,

recalled as a witness in rebuttal by the Government, testified as follows:

RE-EXAMINATION,
BY MR. MILLER:

Q. Doctor Kebler, I will ask you if since Dr. Marshall's testimony in this case you have had occasion to examine

and compare the works on toxicology that are written in the English language with those that are written in foreign languages, such as French or German.

A. I have.

Mr. Sizer: That is not a matter of rebuttal and they cannot bring him in here and bring in textbooks to sustain him.

Mr. Miller: No, I am not intending to do that.

Mr. Sizer: I submit it is immaterial whether he has examined the textbooks or not, if they do not propose doing that.

Mr. Miller: On page 1868 of the testimony of Dr. Marshall he stated that the textbook—and I will read literally from the transcript—in response to a question (reading):

> "Q. Now, Doctor, is the substance caffeine considered or treated in the literature on the subject of toxicology or by persons familiar with that science as a toxic substance, and if it is in any way, state in what connection.
>
> "A. In the textbooks on toxicology published in the English language no reference is made to caffeine as a poison because these books have been written particularly with the idea of describing substances that are ordinarily known as poisonous substances"—

and so forth. I propose to show by this witness that English-speaking toxicologists, or a number of them, deal with this substance.

Mr. Sizer: That was in response to Dr. Kebler's testimony on his former examination. He was asked whether there was any work that classed caffeine as a poison or toxic substance, and he undertook to give a list, and he stated, as I recall now, there were a number of foreign works and German works and possibly two American works that describe caffeine under the head of "Toxic Substances," and on that point we examined Dr. Marshall. That was only in answer to Dr. Kebler's testimony.

Mr. Miller: My question is whether or not there is any difference or distinction drawn between the two, and that is what they brought out by this witness that they examined, and he undertook to draw a distinction, and drew that distinction as to tartaric acid and other substances. I propose to show by this witness that no such distinction exists, and Dr. Marshall gave a list of American toxicologists which treated it as a substance. I was not prepared to ask him on examination in chief what books classified it as a toxic substance. My question is to show the distinction which Dr. Marshall drew did not exist.

The Court: Without giving a list of these books, you will be permitted to ask the witness that question. We will not have all these books in this case.

BY MR. MILLER:

Q. I ask you, then, Dr. Kebler, whether or not there is any distinction drawn, upon an examination of the authorities, between those in the English, those in the German and French or other foreign texts, as to whether or not caffeine is a poison—is a toxic substance?

A. I have found no difference. They are all written on the same principle, the same basis. One man may include one poison and another man may leave it out, but as a general proposition they are all based on the same general basis or proposition.

Q. I will ask you if you have examined Brundage, a manual of toxicology; Vaughan's work on solar toxins, Witthaus & Becker—

The Court: I have excluded all that without your reading it.

Mr. Miller: I merely wanted to show that they were English-speaking works.

The Court: I allow the witness to make a general answer, just as I allowed the other witnesses to make them. Now, the jury has that before them.

Mr. Miller: All right; note an exception.

BY MR. MILLER:

Q. Now, as a doctor of medicine, I will ask you whether or not one four-hundredths of a grain of cocaine would produce an appreciable effect if taken in an ounce of Coca-Cola syrup, either with or without 1.21 grains of caffeine.

Mr. Sizer: I object to that question unless the witness qualifies as a pharmacologist. I do not understand that he has done that.

Mr. Miller: He has qualified once.

Mr. Sizer: Furthermore, it is original matter and not matter in rebuttal.

Mr. Miller: I never brought Brundage out until the cross-examination.

The Court: I do not think it is matter in chief. It is to meet your theory of the distinctive use. That is the object, as I understand it.

Mr. Sizer: I submit the witness has not qualified to speak on the physiological effect of it, nor has he qualified as a pharmacologist.

Mr. Miller: I did not ask about the physiological effect, but simply whether it would produce an appreciable ef-

fect. He is a doctor of medicine and he gave his qualifications in chief.

The Court: He can express his opinion.

A. In my opinion, there is no dose of cocaine so small that it will not have an appreciable effect. Therefore one four-hundredth of a grain would have an effect. I did not want to say an appreciable effect. It has an effect, although it might not be observable.

The Court: If it is not an appreciable effect, it is excluded. We are only dealing with effects that are appreciable.

BY MR. MILLER:

Q. What would that effect be?

Mr. Sizer: I object to that.

The Court: If he cannot say it will have an appreciable effect, I exclude it.

BY MR. MILLER:

Q. If taken in connection with 1.21 grains of caffeine, in your opinion would it or not have an appreciable effect or intensify the effect of caffeine, and if so, state why?

A. It would have a tendency to increase the effect of caffeine, for the simple reason that cocaine is a more powerful drug than caffeine, and the two act in a very similar manner on the various cells.

Mr. Miller: Page 429 of this witness' testimony: He was presented by adversary counsel with two purported trade-marks of Coca-Cola, which I find are not copied into the transcript and I would be glad to have them presented now.

Mr. Sizer: The stenographer has them. We have not seen them since we offered them in evidence.

The Court: I saw them on my desk a day or two ago. I understood they were filed.

Mr. Miller: They are so identified and your Honor directed that they be marked and numbered, but what I want to do at this point is to see that from our point of view they are in the record.

The Court: I so understand it.

Mr. Sizer: If they are not in the record we want them in; but they were filed.

Mr. Hirsch: I understand the stenographer has them.

Mr. Miller: No, sir, they were not filed by Judge Candler. These are two with the trade-mark on them.

The Court: I do not remember but two.

Mr. Miller: Yes; Judge Candler filed various papers. We have copies that we can supply.

Mr. Sizer: The record shows they are in.

The Court: If the record shows they are filed, they are

in. The fact that they are not in the physical possession of the stenographer is immaterial.

(The exhibits referred to were copied in the testimony at the end of that day's proceedings and will be duly found on page 2379 et seq., of this record.)

BY MR. MILLER:

Q. Now, state whether or not you have had any experience in feeding rabbits through tubes. That is, administering Coca-Cola syrup, water and any other substances through a stomach tube such as exhibited by Dr. Morgan on the witness stand.

A. Yes, sir, I took part in those tests.

Q. State whether or not the rabbits were fed anything through the tubes except the Coca-Cola syrup or the other ingredients that were made up; that is, whether or not they received any part of their food through the tube.

A. Nothing except the Coca-Cola syrup, the caffeine solution, the Merchandise No. 5 of various strengths. The regular food they obtained in their customary, natural form.

Q. Those rabbits that did not receive any Coca-Cola syrup, but simply received water—I will ask you to state what, if any, signs of discomfort they exhibited as the result of feeding through the tube.

A. I did not see them exhibit any signs of discomfort.

Q. I will ask you whether or not in your observation and experience the feeding of rabbits—that is, the administration through a tube to rabbits of substances of this kind, is usual and customary.

Mr. Sizer: I do not understand that this witness is qualified as an expert rabbit feeder. He has not testified to any feeding experiments at all.

The Court: I think that exception is well taken; I do not recall any such testimony.

Mr. Miller: I do not recall a rabbit feeder that we had on the stand. Dr. Wesener fed three, and I will ask this witness how many have been fed by him or under his immediate observation.

The Witness: We fed sixty or seventy.

The Court: Unless he had some previous experience, it would not be competent.

Mr. Miller: Dr. Wesener didn't show anything but the three.

The Witness: I have had experience with the examination of animals for a great many years. I have made many experiments on animals when I was in the laboratory in Philadelphia.

The Court: Now he may express an opinion.

BY MR. MILLER:

Q. Now, I ask you whether or not the administration of a drug or any other substance for the purpose of animal experimentation, given through a tube in the way that these rabbits were fed that were the subject of Dr. Morgan's examination, in your opinion, was a proper, usual or customary method of administration.

A. It was a proper, usual and customary method of administering those products—products of that type.

Q. What experience, if any, have you had with respect to the determination of the tannins in the leaves of various growths, including the cola nut and the coca, and likewise the presence of the tannin in wine—California wine.

A. I have never—I have had—I have made many determinations of tannin in various bodies or substances, including various leaves and various plants.

Q. I will ask you to state whether or not the presence of tannin can be easily or readily determined in some of the substances or in all of the substances where it is contained. Explain fully.

A. If it is present in appreciable quantities there is no difficulty whatever in determining the tannin in almost any plant tissue.

Q. How is its presence determined?

A. There are various ways of determining tannin, depending upon the substance containing the tannin. For example, it can be determined by the well-known Hyde powder method and the method known as Proctor's modification of that test.

The Court: There is no question that the presence of tannin can be determined. Nobody disputes that and it is not necessary to go into that.

BY MR. MILLER:

Q. Now, I will ask you whether or not you determine the presence of tannin in what is known as Merchandise No. 5.

A. I determined its presence, but not the amount.

Q. Now, then, is there any reason why the amount could not be determined, and if so, tell why.

A. When I made my test I considered that it was so inappreciable that would be very difficult to estimate it with any degree of accuracy.

Q. State whether or not in your opinion the presence of coca tannin could be determined or established in a

mixture of tannins or among a mixture of tannins.

A. I would consider it impossible.

Q. As respects Merchandise No. 5, what were the and are the predominating odors, if any?

A. The aromatic odor coming from the wine and the toluols; that is, those are the apparent odors.

Q. Does wine have a distinct odor in this Merchandise No. 5?

A. It has a distinct wine-like flavor, yes.

Q. State whether or not the coca flavor in Merchandise No. 5 in your opinion is possible of ascertainment or determination, assuming that it be diluted according to the method given by Doctor Schaefer and that the extract Merchandise No. 5 be prepared according to Doctor Schaefer's formula.

A. I would consider it impossible.

Q. State whether or not in your opinion it could be recognized in such a mixture after it was made up with Coca-Cola syrup of the proportion in which it is made.

A. I don't think it can; I would consider it impossible.

Q. Comparatively speaking, what amount of flavor has cola?

A. Cola?

Q. I mean, coca?

A. Coca has a peculiar odor, but it is of a very moderate character. It is not permeating to the extent that an ordinary perfume would be, and the flavor accompanying raspberries and things of that character. It requires a considerable experience to detect a preparation prepared from coca.

Q. Now, if coca be treated as described by Doctor Schaefer, first with toluol and the other methods of treatment he described, in your opinion would or not the odor and flavor of the coca be lost in the treatment?

A. The flavor and odor would be appreciably diminished, but I hardly think it would be absolutely lost.

Q. Assuming that would be mixed with Coca-Cola syrup, then would it or not be lost entirely?

A. I have made that experiment and find that it is impossible to detect any flavor or odor coming from the coca.

Q. You have experimented with those same ingredients?

A. Yes, sir.

Q. What, if any, distinction is there between raspberry and strawberry flavor as described by Dr. Mallet and that of coca which would be present in the product known as Merchandise No. 5 produced by Dr. Schaefer?

A. Oh, the raspberry flavor is a very distinctive one, and if the raspberries were treated in the same manner as are the leaves for the purpose of preparing Merchandise No. 5, the residue would be virtually odorless. It would be without flavor, and virtually odorless. There is no trouble whatever—

The Court: I do not understand the bearing of that only that Dr. Mallet said you might have a recognizable flavor without being able to make a quantitative analysis.

Mr. Miller: I have no further question along that line if that is true. I know your Honor thinks it is true, but that is not the way I read the record.

The Court: Show me, then, and I will let you examine him further.

Mr. Miller: While they are looking up that, your Honor may hold this incompetent for the same reason:

BY MR. MILLER:

Q. I will ask you whether or not the flavor of raspberry and strawberry mixtures are easily recognizable and readily indicated.

A. They are.

The Court: I do not see the materiality of that and I exclude it. As I recall it, it was purely an incidental remark of Dr. Mallet illustrating that he could find things qualitatively without getting them quantitatively.

Mr. Miller: That is all, then, on the examination of this witness.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. You say you recognize the odor of wine about Merchandise No. 5?

A. Oh, yes.

Q. You don't mean to say that Merchandise No. 5 smells just like wine?

A. No, sir, but the characteristic odor of wine is very prevalent.

Q. But I say, the odor of Merchandise No. 5 is not identical with the odor of wine?

A. Not identical.

Q. And the taste is not identical?

A. I would not consider it so.

Q. Have you tasted Merchandise No. 5?

A. Oh, yes.

Q. Have you tasted wine also?

A. I have tasted it a couple of times.

Q. You know there is a difference?

A. So far as the aroma of the wine is concerned, I

hardly think there is any difference. The wine aroma comes out very particularly, especially if it is warmed.

Q. But do you mean to say that Merchandise No. 5 tastes just like wine?

A. No, sir, it does not taste just like wine.

Q. There is a difference in the flavor of the two?

The Court: It is admitted that there is a difference.

A. Yes, the toluol brings out the difference.

BY MR. SIZER:

Q. Do you say that you can detect the flavor and odor of toluol in Coca-Cola syrup?

A. I can in Merchandise No. 5.

Q. But in Coca-Cola syrup?

A. I have not been able to do that.

Q. But you can detect it in Merchandise No. 5?

A. Yes, sir.

Q. It is a very faint trace, is it not?

A. I remember of noticing that odor the very first time I set my nose to the barrel in Atlanta, Ga., and Philadelphia, and Dallas, Tex., and many other places, at divers and many times. I recognized the odor very clearly and perceptibly.

Q. Is there any other substance that gives the same odor as toluol?

A. I do not know of any that gives just that odor?

Q. Have you ever had much experience in detecting the minute differences in the smell and taste of different substances?

A. I have.

Q. In what line?

A. When I was in charge of the laboratory it was my duty to make investigations and experiments on the detection of various shades of odors and the aromas present in the various essential oils, and by that method to differentiate a given oil from another, and vice versa.

Mr. Miller: What laboratory?

The Witness: The Philadelphia laboratory I spoke of.

BY MR. SIZER:

Q. Now, you say you did not undertake to determine quantitatively the amount of tannin in Merchandise No. 5. Is it not true that although you cannot determine quantitatively the tannin in a particular mixture, you may be able to identify the tannin as coming from a particular source?

A. I consider that impossible—that mixture.

Q. Are there not different infusions that will react

differently with different kinds of tannins?

A. That is true.

Q. Are you prepared to say that the tests to which this mixture were submitted by the analyst who testified on behalf of the claimant, did not show or would not indicate the source from which those tannins came?

A. I consider it impossible.

Q. Have you tried that—

Mr. Miller: Let him answer.

A. From my general knowledge of tannin I consider that impossible.

BY MR. SIZER:

Q. Have you tried the particular tests to which those witnesses testified in order to determine whether or not the results they testified to were correct?

A. No, sir, I have never conducted those precise experiments that they enunciated in court.

Q. On what was it, then, that you undertook to express the opinion as an expert that those gentlemen did not ascertain the result to which they testified from the experiments they made?

A. I simply state in my opinion it was impossible.

Q. But your opinion is that of an expert and not that of a man who has made these tests?

A. Not on this particular mixture—yes.

Q. Would it not be possible to identify infusions of different tannins by comparing the results of the reactions of those infusions with all known reagents for tannin or tannin-like substances when they are separate and apart from one another?

A. That is possible, but when they are mixed—it is impossible.

Q. Could you not determine that by a process of elimination, determining first as to one kind of tannin and then as to another?

A. I know of no such method.

Q. You don't know of any such method?

A. I would consider it impossible.

Q. The simple fact that you do not know of such a method would not indicate it was absolutely impossible, would it?

A. There is no such method, in the first place. I am very well acquainted with those chemical reagents. I know the various reactions they will produce when applied to many tannins; I know the various shades, the degrees of shade that they develop, and it would be impossible to detect one tannin in the presence of two or

three more other tannins from different sources.

Q. Did you ever undertake to determine the tannin that is peculiar to coca leaves, in any way?

A. No, sir; I would not say I have.

Q. Did you ever undertake to experiment either qualitatively or quantitatively with the peculiar kind of tannin that exists in the cola nut?

A. I have made tests for that tannin, yes.

Q. You have never made tests, have you, for the coca tannin?

A. No, sir; I never have.

Q. What kind of tests did you make to determine the cola tannin?

A. Quite a good many—

Q. But I ask you about the ones you made?

A. I was just going to state. For example, you have the first thing—

Q. Don't tell what we have, but just what you did.

A. I am using the impersonal adjective.

Q. I would rather you use the personal and state what you used.

A. First of all, I determined whether or not the tannin is present.

Q. How do you determine that?

A. Various reagents.

Q. What reagents?

A. I am going to say. For example, ferric chloride, ferrous chloride, ammonia sometimes produces a peculiar reaction, lead acetate, those are the chief ones I recall just now.

Q. You used all those in determining the cola tannin, did you?

A. Yes. When we have a new tannin we usually apply—

The Court: He is not asking you for generalities. You said you examined the cola for tannin, and he wants to know just what you did do, and not what you might have done.

The Witness: I applied the usual reagents, ferric chloride, lead acetate, that is the common test; ferrous chloride is sometimes applied.

BY MR. SIZER:

Q. Are you undertaking to testify about any particular test that you made, or just giving the general result?

A. No, sir. I am talking about my own work.

Q. You recall that you did make a specific test for cola tannin?

A. Yes, sir.

Q. And you are undertaking to tell us how you proceeded to identify it?

A. Yes, sir.

Q. When was that?

A. That was probably ten years ago.

Q. I ask you whether it is a little difficult for you to detail all the processes?

A. Yes.

Q. You have not made a test of that kind in ten years?

A. Not for cola tannins.

Q. Now, about this Merchandise No. 5. You had been to Doctor Schaefer's works and seen the process by which Merchandise No. 5 was manufactured before you smelt the toluol in it, had you not?

A. No, sir.

Q. Have you ever seen any Merchandise No. 5 before you went down there?

A. Down where?

Q. Doctor Schaefer's Works.

A. Yes, sir.

Q. You say you smelt the toluol in No. 5 before you went to Doctor Schaefer's Works?

A. Yes, sir.

Q. You did go to Doctor Schaefer's Works and saw the process of manufacture?

A. I went to Doctor Schaefer's Works and the process was detailed to me. I never saw it in operation.

Q. They were using white California wine at the time you went there?

A. They did not say whether it was white or red California wine.

Q. You didn't see it?

A. No, sir.

Q. And he didn't tell you?

A. No, sir.

Q. Could you tell by the color of the mixture whether they were using white or red wine?

A. I did not see the process.

Q. Did you see any of the manufactured product?

A. No, sir; not in Doctor Schaefer's factory. They were not running at the time.

Q. About the rabbit experiments, did you ever personally conduct any experiments with rabbits, and in which they had tubes put down their throat?

A. Yes, sir.

Q. Did you ever yourself put tubes down?

A. Many a time.

Q. Did you ever kill any of them in the process?

A. No, sir; I have never been unfortunate enough.

Q. Did you ever have them bite the tube off before you could get it down their throat?

A. No, sir.

Q. How did you keep them from doing that?

A. It is a simple mechanism that we use.

Q. What is it?

A. A piece of wood is put in between the rabbit's teeth the wood having a hole through which the tube is inserted into the mouth and down the rabbit's gullet.

Q. You take a piece of wood how large?

A. About the size of your finger.

Q. Put the tube through that block of wood?

A. Yes, sir.

Q. You say he really seems to enjoy that process?

A. I never saw them express any dissatisfaction.

Q. You say the effect of 1/400 of a grain of cocaine would not be appreciable?

A. I hardly think it would be appreciable so far as we can determine by present methods.

Q. That is what I mean, appreciable means, what we can determine by present methods?

A. Yes, sir.

Q. Do you say the effects of caffeine and cocaine are identical?

A. I said they are similar in many respects.

Q. How much would the effect of 1/400 of a grain of cocaine affect the effect of 1.21 grains of caffeine?

A. Cocaine is about ten times as powerful as caffeine.

Q. How is that?

A. Cocaine is about ten times as powerful as caffeine, and in that proportion it would increase the action of the caffeine.

Q. How do you know that?

A. From experience.

Q. What experience — how have you contrasted the effect of caffeine and cocaine?

A. By general observation, for example, you give a rabbit a dose of caffeine — the dose must be very much larger when you give him the dose of cocaine, and furthermore, the dose of cocaine is always less than that of caffeine.

Q. If you should give him 1/10 as much cocaine as you give caffeine, the effect would be the same?

A. Oh, no, they are similar but not the same.

Q. They would be strikingly different?

A. I don't think so.

Q. A man might take four or five grains of caffeine might he not, people sometimes do?

A. I don't get that question.

Q. They sometimes take four or five grains of caffeine?

A. Yes, sir.

Q. What would be the effect be if you would give him 1/10 that amount of cocaine?

A. I think the effect would be similar in many respects but not identical. My observation has been that it would be similar in connection with the work I have conducted on the drug.

Q. How much cocaine can you give a person without killing him?

A. That depends. I have seen people take 25 grains.

Q. That is when they get tolerant to it and get the cocaine habit?

A. You didn't limit your question.

Q. Take a man not accustomed to the use of cocaine, how much can you give him without killing him?

A. There is nothing on record to show definitely how much people can take, how much it will take to kill a man.

Q. So you cannot tell?

A. It is sometimes stated that such and such a quantity may produce death, but nothing definite is on record.

(Witness excused.)

(Thereupon at 12 o'clock noon, Court adjourned until 12:20 the same day.)

AFTER RECESS:

The Court met pursuant to recess at 12:20 o'clock p. m.

GOVERNMENT'S EVIDENCE IN REBUTTAL, CONTINUED:

L. F. KEBLER,

resumed the stand for further

CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor, I believe you say you consider cocaine has about ten times the strength of caffeine, or is about ten times as strong as caffeine, therefore 1/400 of a grain of cocaine would be equivalent to 1/40 of a grain of caffeine?

A. That is possible.

Q. Now, if you have an ounce of syrup containing 1.21 grains of caffeine and after that 1/40 of a grain of caffeine which would make 1.225 of a grain, do you think there would be any appreciable difference in the latter mixture, that the latter mixture would be appreciably stronger than the former?

A. Well, state that again.

Q. Just read him the question?

(Whereupon the question was read to him as follows: "Q. Now, if you have an ounce of syrup containing 1.21 grains of caffeine and after that 1/40 of a grain of caffeine which would make 1.225 of a grain, do you think there would be any appreciable difference in the latter mixture, that the latter mixture would be appreciably stronger than the former?")

A. Well, it would be in proportion to the amount of caffeine added. My answer was, or intended to be, that the caffeine would simply augment the action in the amount present.

Q. But my question was whether the effects of an ounce of syrup containing 1.225 of a grain of caffeine would be appreciably different from the effects of an ounce of syrup containing 1.21 of a grain of caffeine. In other words, would the addition of 1/40 of a grain of caffeine to an ounce of syrup make any appreciable difference?

A. It might not be appreciable — and yet cocaine has a marked action in 1/40 of a grain.

Q. Now, Doctor, referring to a five-ounce cup of coffee, that contains about 40 teaspoonfuls?

A. A five-ounce cup of coffee?

Q. Yes, or a five-ounce cup of any fluid.

A. Yes.

Q. Now, if that cup of coffee contained one grain of caffeine, there would be about 1/40 of a grain in each teaspoonful?

A. Yes, sir.

Q. Then, suppose you take the cup of coffee containing forty teaspoonfuls and then take another teaspoonful, do you think that the additional teaspoonful would create any appreciable effect?

A. I think I have answered that question.

The Court: I think that is a matter for argument.

Mr. Sizer: All right.

REDIRECT EXAMINATION,

BY MR. MILLER:

Q. Doctor, can from your experience, observation and working with tannin, approximately what is the proportion of tannin in coca or what is known here indiscriminately as coca or coca leaf, the form in which it has been used.

A. The form in which it is used I would consider it contained in the neighborhood of 1/4 of a per cent.

RECROSS-EXAMINATION,
BY MR. SIZER:

Q. Did you testify that you never had undertaken to determine tannin in the coca leaf?

A. Yes, sir.

Q. So you have not undertaken to do that, have you?

A. No, sir, I didn't say I did.

Q. You stated you had not?

A. Yes, sir.

Q. That you had never undertaken to determine it?

A. Yes, sir.

(Witness excused.)

Mr. Miller: I wish before calling anybody to the stand to submit I have some witnesses with respect to the consumption of Coca-Cola by children, and your Honor will recollect that that matter was up the other day. I have the testimony here on that point, and I have no desire to read it but just merely desire to pass it to your Honor.

The Court: The question of the effect of my former ruling — whether I allowed you to go into that question.

Mr. Sizer: How was that?

The Court: Whether I allowed Mr. Miller to go into that question or excluded him from the introduction of witnesses to show it was drunk by children, I will allow you to go into that if I precluded you.

Mr. Sizer: Here is what your Honor said at page 1095:

"The Court: You are trying to prove the general fact that Coca-Cola is sold without restriction to adults and children. That has been proven repeatedly. If you want to show to what extent children drink it, differing from that general custom, you may go into that."

And thereupon Mr. Miller proceeded to go into that.

Mr. Miller: I do not wish to argue the matter. I want to give your Honor exactly what occurred in three or four questions and then offer these other witnesses, and here it is:

"Q. State whether or not you observed as to the consumption by children.

A. I have noticed children taking it."

And the Court said:

"There is no dispute about that, Mr. Miller."

And I said, "There was a great effort to dispute that in the testimony originally," and the Court said "Until it is disputed, you need not go into that"; and I said "Is there any dispute about children taking Coca-Cola?"; and the Court said "Yes, if there is no dispute, you need not go

further into that"; and Mr. Sizer said "We say they can get it if they want it, but as a general rule they do not care for it"; and I said to that "I am trying to show that they do take it and care for it by this witness"; and then the Court stated "You are trying to prove the general fact that Coca-Cola is sold without restriction to adults and children. That has been proven repeatedly. If you want to show to what extent children drink it, different from that general custom, you may go into that".

That is the way we have it here. I am not trying to insist for a moment that I misunderstood anything, I am trying to put an entirely different construction on that language from what Mr. Sizer does, and I submit it to your Honor what was meant when you said "If you desire to show to what extent they drink it, different from the general custom" that I could go into it.

The Court: Didn't you proceed to ask questions about it?

Mr. Miller: Yes, and with respect to the consumption by children this witness said he did not know about it.

The Court: Well, I did not rule it out. I will let you go right ahead.

Mr. Miller: Yes, but I submit whether or not in that connection I had a right to assume you would know permitted to go ahead with this witness, in view of that announcement by your Honor, I had a right to assume that no more testimony on that point should be introduced unless I could differentiate the consumption of it by children from indiscriminate consumption. But I submit, whether I am right or wrong about it, adversary counsel, to meet that proposition as I understood it, proved that children did not consume it because they did not like it. Now, that has been the reason offered here repeatedly, and I think the record will bear me out, and I submit it would be a physical impossibility and monstrosity to call children as to whether they like it or not. The only way we can disprove it, that they do not like it, which comes from the defense, is to call dispensers to show that they are acquainted with it, and with that, I have nothing further to say.

The Court: The reasons for their taking it or their not taking it — it seems to me are immaterial. It seems to me that I have a very distinct impression and have had all the time that my ruling was just as I now stated. I am compelled to construe that as meaning that you need not prove by any witness the fact that Coca-Cola was on sale indiscriminately to all persons, including children. That fact was not in dispute, but the purpose was to show the extent to which children drank it, and you were permitted in chief to go into that, and I did not intend to exclude it, and I

don't think that I did, and I think it is indicated that I did not exclude it by the fact that you after put a witness on the stand to prove it, and I never stopped you as I recall it on that point. I certainly did not intend to.

Mr. Miller: Well, all we wish to do is to show that we had these dispensers in attendance and offered to call them.

The Court: You may show that.

Mr. Miller: In that same connection, I desire to offer a list of the American toxicologists as an exhibit to Doctor Kebler's testimony dealing with that subject which your Honor said we could not go into this morning.

The Court: I will say that if this motion had come up earlier in the case, I should probably have allowed you to introduce that in evidence, even if it is in chief, but I think it is unfair at the close of the trial when the claimant will evidently have no opportunity to look into the witnesses who come here — it would be impossible for them to do so, and I don't think that proof ought to be allowed in the case, which is in chief, when the case is about ready to close and when it might prejudice the claimant by not having that opportunity ——

Mr. Miller: All three witnesses reside in Chattanooga.

Mr. Sizer: I would like to see the papers they propose to offer.

The Court: It is a list or what?

Mr. Miller: Of toxicologists and what they say, the American and English text books on the subject.

Mr. Sizer: I don't understand your Honor admits all these books.

The Court: He wants to show that he offered them and to show it in the record, that he made the offer and that they were ruled out.

Mr. Miller: Yes.

(The list offered and excluded by the Court was in the words and figures following):

"In this connection show by Dr. Kebler that Blythe (Poisons, Their effects and Detection, 1906 Ed., pp. 40-1) treats of caffeine under the heading 'Toxic Action and Chemical Composition.'

And on page 56 of the same work appears the title 'The spectroscope as an Aid to the Identification of Certain Poisons', which is followed (on page 58) by a group of poisonous substances which are enumerated, including caffeine.

BRUNDAGE (Manual of Toxicology, Ed. 1910, pp. 108-9) deals with caffeine as a poisonous substance, giving (a) symptoms of caffeine poisoning and (b) the treatment

therefor, including stomach pump, emetic, and divers other applications to minimize the effects of caffeine poisoning.

DR. V. C. VAUGHAN, a witness of libelee, in a work by Vaughan and Novy, on Cellular Toxins (4th edition, 1902) page 345, treats of caffeine and describes its effects on the human system.

WITTHAUS AND BECK, in their treatise on Medical Jurisprudence (Forensic) and Toxicology (1896 Edition) Dr. Witthaus having been called as a witness for the libelee — in vol. 4, page 56, under the statistics of poisoning cases, includes caffeine with divers other poisons.

PETERSEN AND HAINES — the latter of whom was called as a witness for libellees, in their Text-book of Legal Medicine and Toxicology (Vol. 2, Ed. 1904, page 300-1) in giving the definition of a poison as respects quantity, include caffeine.

1/400 of a grain of cocaine would produce an appreciable effect and would materially intensify the effect of 1-1/5 grains of caffeine in a glass of carbonated water.

In this connection show the Pharmacopoeial dose of cocaine, in response to a point made by adversary counsel at pages 1868-1870.

Dr. Kebler, on page 429, was asked as to two trade-marks of the Coca-Cola Company, and on page 430 the Court stated 'They can be identified as Nos. 2 and 3 to the testimony of this witness.'

They have not been filed, yet."

The Court: Let me see the examination of that witness on the question as to the children ——

Mr. Hirsch: All right.

Mr. Miller: We will ask Doctor Boos to take the stand.

DR. WILLIAM F. BOOS,
recalled for further examination, testified as follows:

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Boos, I will get you to state whether or not you have had occasion to conduct animal experiments and the administration of drugs such as solution of caffeine or aqueous solutions of caffeine, as testified to by the witnesses for the government in this case, and especially as to whether or not the introduction of a tube in the administration of such drugs in the case of a rabbit is harmful?

A. I have had occasion to use a tube on rabbits very frequently, perhaps on some 200 animals or more, and it is a very usual method, in fact the only method by which

we can actually with any substance into the stomach of the animal.

Q. Why is that so, why do you say it is the only method by which you can accurately do it?

A. It is the only way to use it in order to be absolutely certain that the entire amount of the substance reaches the stomach, if you give it into the stomach.

Q. Is it or not necessary and usual that the animal be fed his food in the aqueous solution of caffeine or drug, or does it take that in a different way?

A. No, the animal continues — if you are giving the substance which you are experimenting through a tube, you do not have to vary the exact process of alimentation, that is of the food going on in the animal's body, the change, the exact changes which take place in the food in the body, why you can allow the animal to continue to eat its food in the usual way, the introduction of food for the purpose of determining other substances does not have anything to do with the animal's nutrition in any way.

Q. I will get you to state whether or not you have either been present at autopsies where animals had been fed drugs or administered drugs through a rubber tube, such as the witness Morgan did, and if any effects of the insertion of the tube were found at such autopsies?

A. Yes, I have on a great many autopsies myself and have been present at a great many others. I have seen a great many, but in no instances can I remember any effects of the tube on the esophagus. It is quite inconceivable.

Q. Whether that tube that was permitted ——

Mr. Hirsch: It has been exhibited here.

The Witness: We use a small catheter.

Mr. Sizer: I object to that.

The Court: Well, he wants to show what the usual method was.

Mr. Sizer: That is irrelevant.

The Court: I think it would be more to the advantage of the claimant if they want to show that something different was used.

Mr. Miller: I was trying to show the character of the tube that was usually used, and whether or not it was similar to one Doctor Morgan exhibited here.

The Court: Well, you may ask that question.

BY MR. MILLER:

Q. Did you see the tube that was here exhibited?

A. Yes, sir, only at a distance, I didn't examine it close enough. I was talking about the tube I used.

Q. What is the one that is customarily used?

A. We use a soft rubber catheter.

Q. A soft rubber catheter?

A. A catheter.

Q. Well, just describe it as compared with this one that Doctor Morgan had.

The Court: Have you got that one here?

Mr. Miller: I think it was put in evidence.

The Witness: I think it is possibly the same thing, I did not examine it closely.

Mr. Miller: If we can find it, we would like to have it very much. I don't know whether it was actually introduced in evidence or not. There have been so many things done that should not have been, and so many things left undone which should have been done.

The Court: You may proceed.

Mr. Sizer: It was offered in evidence. It may not have been filed with the stenographer, I think it was handed around to the jury.

Mr. Miller: Yes, that is true.

The Court: It may be filed with the stenographer as part of the evidence.

BY MR. MILLER:

Q. I will ask you from the examination of the tube that you have made from a distance as you say you have observed it, compared with the tube that is usually and customarily used in such cases.

A. As far as I could tell from the distance, it was about the same thing as I have used myself in a great many cases.

Q. Were you sitting, how close were you to it?

A. About where Mr. Fuller is sitting now.

Q. That is at this table?

A. Yes, sir.

Q. When the tube was being passed around to the jury?

A. Yes, sir. One point is it might have been a small stomach tube, such as those that are used so frequently on human beings to wash out the stomach, it might have been a catheter, but there is a very slight difference anyway in which the instrument is made, but it is immaterial; the consistency is the same, it is made of soft rubber and pliable so it adjusts itself to the passage.

Q. Would there be any difference in the matter of injury on the inside as to which was inserted?

A. No, sir.

Q. Would it cause any injury?

A. No, sir; of course it has to be properly inserted.

Q. Now, if any injuries resulted from the insertion of that tube, such a one as Doctor Morgan exhibited here, where would that injurious result have been manifested,

what proportion of the anatomy would it have injured?

A. The only trouble that ever follows as far as I have ever known in the insertion of a soft rubber tube into the rabbit's mouth is putting the tube into the windpipe instead of into the esophagus, and that is committing a serious error in technique and no man with any skill whatever ought to have such a thing as that happen to him. The same is true of biting off the end of the tube.

Q. Now, in the case of the autopsies that were held by Doctor Formad and Gallagher, state whether or not the injurious applications that they described could have in any wise in your opinion have been ascribed to the insertion of the tube and the effect of solutions through the tube.

A. No, sir; such an instance would be absolutely ridiculous to my mind.

Q. State why.

A. Because ——

Mr. Sizer: I don't think that is a matter in rebuttal. This witness was examined about that in chief.

The Court: I think that is in rebuttal — you attacked those experiments on the ground that they were conducted through a tube. I think it is proper now for the Government to rebut that.

BY MR. MILLER:

Q. State why, Doctor.

A. Because in the first place, Doctors Formad and Gallagher, as I remember, did not find any sign of local injury caused by the tube. And if the tube had been in any way responsible for the trouble in the animal, it would have caused a local injury at some point, and even if a local injury had been caused, it would not have led to hyperemia of the brain and other organs.

Mr. Sizer: I move to exclude so much of the answer of the witness as to what these Doctors testified as to any injury to the windpipe, trachea or esophagus, because their testimony is before the jury and shows for itself what they said.

The Court: I don't think it the proper way to get that in. The objection is sustained. If you want to get the opinion of this witness as to matters that he did not see, you can put it in the form of a hypothetical question.

BY MR. MILLER:

Q. I will ask you to what portion of the anatomy the injury, if any, that would result from the insertion of a tube, would be confined?

A. Why, it would be confined to the esophagus.
Q. Then tell us what the esophagus is.
A. The gullet.
Q. And show us where that is.
A. That part through which the food goes into the stomach.
Q. That means a part of your neck up here?
A. Yes, sir, in front.

BY MR. MILLER:

Q. State if you heard or have read the testimony of Dr. Wesener as to experiments with fifteen grains of caffeine per day and of recovering none of the caffeine from the urine.
A. Pardon me. I think he said for two days he gave them thirteen grains, not fifteen; on one day thirteen grains and on another thirteen and six-tenths.
Q. Well, assuming that thirteen grains were administered in succession and none was recovered in the urine; what would that prove as to the value of the experiment?
A. I would say if after giving a person thirteen grains of caffeine on two successive days Dr. Wesener was not able to recover caffeine from the urine, that was not the fault of the caffeine but the fault of Dr. Wesener's technique, that the caffeine was there beyond a doubt to my mind.
Q. I will ask you to state whether or not caffeine has or not frequently been found in the urine.
A. It is stated in all of the works upon the subject ——
Mr. Sizer: I object to that.
The Court: The objection is sustained.

BY MR. MILLER:

Q. Speaking from the literature, state whether or not caffeine when taken in such quantities is excreted and found in the urine.
Mr. Sizer: I object to that. He cannot make that competent by testifying from the literature.
The Court: The objection is sustained.

BY MR. MILLER:

Q. I ask you on what you base your opinion that this failure to find caffeine in the urine was due to the technique adopted by Dr. Wesener.
A. Because it is common knowledge of scientists who have had any study of the subject of pharmacology that caffeine is excreted in the urine under ordinary conditions.
Mr. Sizer: I want to object to this testimony again be-

cause it is simply a rehash and a restatement of what the witness undertook to testify on his original examination in chief.

A. I did not testify on that subject at all.

Mr. Sizer: We have it here.

Mr. Miller: I am asking about Dr. Wesener's experiments.

Mr. Sizer: But he is answering as to caffeine in the urine.

The Court: I do not think that this re-examination comes within the limits that should be observed in a re-examination with reference to results. I do not believe that either side should go into a general criticism of this sort of the experiments of the other side, but if they can point out in the methods used, anything to show that there was a defect in the result, they can do so. Now, if your side, if Dr. Boos can point out anything in Dr. Wesener's methods that would lead to inaccurate results, that is competent.

BY MR. MILLER:

Q. Borrowing the phraseology of your Honor, — I will ask you to state, Dr. Boos, if there was anything about the administration or carrying on of Dr. Wesener's methods that in your opinion rendered incompetent and inaccurate, the test, and if so, to tell what it was.

A. Not having done this work recently I would not say that the method as described by Dr. Wesener was not a good one, but I would like to explain this: Because a man describes a certain method does not say that the man carried the method out carefully.

Mr. Sizer: I move to strike out all the testimony of this witness with respect to Dr. Wesener's experiments.

The Court: The motion is sustained.

Mr. Miller: But to part of it there was no exception at the time it was given.

Mr. Sizer: I make the objection now because he admits that he cannot criticise Dr. Wesener.

The Court: The witness does not say that exactly, but I exclude the testimony. I intended from the start to limit both sides in this matter to criticism of the methods employed by others. The jury must determine as to the care and accuracy of the results.

Mr. Miller: Note an exception.

The Court: Let it be noted.

BY MR. MILLER:

Q. Now, for caffeine to reach the brain, I will ask you to state whether or not it is necessary for it to reach the

muscle directly as such.

Mr. Sizer: That was all gone into.

The Court: I have ruled that out and I do not see the bearing. But if it has any bearing, it is not a matter in chief.

Mr. Miller: I offer this in response to Dr. Schmiedeberg's deposition read this morning and which stated this morning that it was a stimulant to the muscle.

The Court: Of the will, he said.

Mr. Miller: As he said, it permitted the will to act more directly on the muscle. My point is before it can reach the muscle, it must pass through the brain, and I think that is directly in rebuttal of what Dr. Schmiedeberg said. I am not responsible for the getting of that deposition in.

The Court: I will allow you for that purpose to examine this witness on that point.

(Question read to the witness.)

A. In order that caffeine may reach the brain it must at the same time reach the muscle in the circulation of the blood.

BY MR. MILLER:

Q. Why so?

A. Because the circulation carries it to all parts of the body and it is impossible for the circulation to carry caffeine to the brain and not at the same time to carry it to the muscles.

Mr. Sizer: I submit that is not in rebuttal of anything Dr. Schmiedeberg said and that is something that has been gone into before and threshed out by various witnesses testifying to their theories as to how much it reaches the muscles, and so forth.

The Court: I will allow it to be asked in view of the last deposition; otherwise I would not.

A. Your Honor has ruled that the experiments ——

Mr. Sizer: I object to that.

The Court: If the witness wants to make an explanation, the Court will allow it.

A. The experiment showing the action of caffeine directly applied to the muscle is always used to demonstrate that action and for no other purpose.

The Court: I do not think that is an explanation and I exclude it; that bears on the ruling of the Court and I exclude it.

The Witness: I simply wanted to show that it is not designed to show ——

The Court: That is excluded ——

The Witness: It is simply a convenient method of showing this action.

The Court: That matter is excluded. The answer to the question is not excluded, but the explanation is.

BY MR. MILLER:

Q. To what is the reflex irritability attributable? Is that a caffeine action or a monomethyl action, or what?

A. There is always a certain degree of reflex irritability present. The increase of reflex irritability is attributed to the caffeine. The other drugs are dimethylxanthine and monomethylxanthine, and they may produce it to a slight degree, but only to a slight degree.

Mr. Sizer: I do not see what that is in rebuttal of.

Mr. Miller: Dr. Schmiedeberg and some of the other witnesses said there was a decided increase of reflex irritability.

Mr. Sizer: Well, that does not rebut that proposition.

BY MR. MILLER:

Q. State whether or not you have read what is known as the Zenetz and the Allard and the Lemaire cases, which are reported as death due to caffeine poisoning or cases due to caffeine intoxication, and if you state you have from the original text, then I desire to interrogate you on that point.

Mr. Sizer: We object to that. I think this witness is the one who originally introduced the Zenetz and the Allard cases into the record, or at least they were introduced by some of the witnesses on behalf of the Government; I am quite sure Dr. Boos testified about that.

The Court: I do not recalled exactly as to that. I think they were not introduced by Dr. Boos, but if he has testified to that in chief, I exclude it. He would be a striking exception to the scientific witnesses who have testified if he did not refer to it. Did you testify as to those, Doctor?

The Witness: I did not mention either case, — one single word.

The Court: You may proceed.

BY MR. MILLER:

Q. I will ask you to state if you have read the Zenetz, the Allard and the Lemaire cases.

A. I have read the Zenetz cases. It is pronounced T-s-t-n-e-t-z. And the Allard cases and some of the Lemaire cases.

Q. As respects the Zenetz cases, I will ask you whether or not, taking into consideration the symptoms as there given and reported, the cases were cases of death due to caffeine.

A. To my mind there is no doubt as to that.

Mr. Sizer: I object to his testifying what is in his mind.

The Court: I think the better method is the reverse of that as used by the counsel for the Claimant. They asked them what in those cases indicated that they were not cases of caffeine poisoning. You ask now, what in the report indicates that they were, so that the witnesses may point it out.

BY MR. MILLER:

Q. I will ask you what there is in the report of the Zenetz case, to start with, that convinces you or causes you to believe that they were due to caffeine poisoning.

A. All three cases died suddenly and in all three cases the autopsies after death showed a very peculiar contraction of the heart, a very spasmodic contraction of the heart, so that in one of the cases, the second one, the heart was so tightly contracted as to obliterate the changes of the heart. That is a characteristic condition that is never seen in any other kind of poisoning.

Q. I will ask you to state from your experience and knowledge and from your reading of the literature, whether or not any person has ever conducted experiments with caffeine on human beings, and if so, who it was.

A. The only series of systematic experiments that have been conducted on human beings to determine the action of caffeine, were those conducted by this man Zenetz.

Mr. Sizer: I object to his testifying to experiments conducted by Zenetz. I do not understand that that is with reference to these reported cases.

The Court: The exception is sustained.

Mr. Miller: Our point is — I do not wish to argue with the Court after it has ruled — but Dr. Vaughan stated that animal experimentation should be taken only as a partial indication of what this drug would do on man because no human experimentation had ever been conducted. I am trying to show that one author did conduct experiments on human beings in response to that particular portion of Dr. Vaughan's testimony.

The Court: That is entirely collateral; it has another prejudicial effect that might overcome that effect. If that were the only effect I might admit it, but it has another tendency.

BY MR. MILLER:

Q. Now, then, what is there about the administration of caffeine that causes this spastic contraction of the heart which Zenetz describes?

A. It is the tendency of caffeine to produce the spastic contraction of muscles and the heart simply being one of the muscles of the body, it is exposed to the same possibil-

ity of spastic contraction which we see in the muscles of any caffeine poisoning.

The Court: If you want to prove that there has been one set of experiments with caffeine on human beings, you can do it.

BY MR. MILLER:

Q. I ask you whether or not there has been a set of experiments, speaking from your personal knowledge and reading of standard literature, on humanity for the purpose of determining the effects of caffeine on humanity, and if you say yes, through what period of time. That must be limited to experiments reported in some scientific journal. Unless your statement is based on statements reported in scientific literature, don't give them, but if it is, give it.

Mr. Sizer: We object to that; that would be bringing in reported cases as original evidence.

The Court: I am not letting in what it was, but I let it in just simply for the purpose of bearing on another witness' testimony, to contradict the other statements.

Mr. Sizer: I think Mr. Miller is laboring under a misapprehension. Doctor Vaughan did not testify that no experiments had ever been conducted on human beings. As a matter of fact, some of our witnesses did make such experiments.

The Court: I do not recall that statement, but if it was made I will allow this.

Mr. Sizer: We will admit at bar that experiments have been conducted on human beings. I refer to Dr. Wilcox' experiment on himself.

Mr. Miller: I am speaking of cases reported in the literature.

Mr. Sizer: I admit that Dr. Wilcox testified to having made one experiment and I do not object to Dr. Boos' testifying that there are reports in literature of experiments on human beings as to the use of caffeine.

The Court: That is all that is admitted.

Mr. Sizer: Then I withdraw any objection to that.

BY MR. MILLER:

Q. Do you know of any other author than Doctor Zenetz that had conducted ——

The Court: I have excluded the fact that Dr. Zenetz had conducted — counsel misunderstood me. I simply permit him to ask the question of the witness whether he knows, without naming the men who conducted the experiments, that any experiments as to the use of caffeine on

human beings have been reported in scientific works.

BY MR. MILLER:

Q. I will ask you whether or not you know of any experiments with caffeine that have been conducted on human beings that have been reported in scientific works.

A. I do.

Q. Now, state whether or not in the reported cases like those Zenetz and Allard and Lemaire cases, if there had been any unusual symptoms or contra-indications, that is as respects the effect of caffeine on the heart, and that death was due to caffeine poisoning, if in the usual and ordinary courses of reporting, that would have been chronicled.

Mr. Sizer: That is a matter of inference. Dr. Boos can not tell what Dr. Zenetz might or might not have done.

The Court: He can testify as to the general custom among scientific men in reporting cases of that character, if there be such a custom. I think that has been proven several times and never denied.

Mr. Miller: On the contrary, here is a sample of what he claims the witnesses have testified ——

The Court: Did any of the witnesses say it was not a custom for scientific men to report their cases?

Mr. Miller: (Reading) "The article is somewhat loosely written and may be interpreted in several ways." Another witness says: "The author simply claims it is dangerous to use medicinal doses or large doses or caffeine."

The Court: Until someone disputes the general custom, I do not think it is competent and you need not have any evidence to the contrary.

Mr. Miller: Assuming that proven, I will go on.

The Court: There are witnesses to that point and I recall none to the contrary.

BY MR. MILLER:

Q. Now, from the report of the Zenetz and Lemaire cases, I will ask you whether or not as a scientific man in your opinion they are loosely written or whether there is omission or insertion of anything that to your mind tends to confuse or make ambiguous the report as there shown.

A. I think not. It is perfectly clear to my mind.

Q. Can you tell by looking at morphine and caffeine crystals taken from the original containers, as they are prepared, any difference by sight?

A. No, sir.

Mr. Sizer: I do not understand, your Honor, that Doctor Boos is qualified as an expert on drugs. If he wants to

do so, all right.

The Court: What has been your experience along that line?

The Witness: That is my business; I have to use a great many drugs in my work and I am very familiar with the appearance of drugs, but it would be absolutely impossible for me to distinguish caffeine from a number of other drugs that look very much like it.

The Court: Has your experience been such as to qualify you to express an opinion on that?

The Witness: Oh, yes.

The Court: He may state.

Mr. Miller: That is all I want to show on that line.

BY MR. MILLER:

Q. Did you hear the testimony of this Professor Hollingworth, the psychologist who was introduced?

A. I did.

Q. I will ask you to state what if any inferences you were able to draw from the experiments as reported by Dr. Hollingworth, or conclusions, rather, instead of inferences, assuming his statements to be true as to the effects of caffeine on the human system.

A. Assuming that his experiments have value and that his conclusions are correct, the experiments would show that caffeine has a great tendency to disturb and render less efficient all those actions which are dependent upon co-ordination.

Q. And by "co-ordination" you mean connection ——

A. The acting together of a number of impulses to produce a certain action.

Q. What was there about those experiments that caused you to arrive at that conclusion?

A. Because in the experiments which had to do with placing the peg in the hole, it was found that caffeine made the person doing the experimenting much less steady; that in trying to put the peg into the hole he would sort of lunge forward, he would be too ready to do it, in a way, and that he had to overcome this readiness or over-stimulation, in order to place it in the hole properly, and the very fact that he had to overcome that, destroys the value of that experiment.

Q. Now, in conducting experiments of that kind, state whether or not it is necessary in order to conduct them according to scientific methods, to have controls along with the other specimens or subjects.

A. Mr. Miller, you assume in your question that you can conduct scientific experiments along that line and that

is an utter impossibility.

Q. Why so?

A. Because all those experiments under the head of experimental psychology are not true scientific experiments. There is no such thing as experimental psychology. It does not exist.

Q. Why do you say there is no such thing as experimental psychology — what is your foundation for that?

A. Psychology is a speculative study. It is a branch of philosophy; as such, it is entirely speculative. On the other hand, we have the exact science of physiology. You cannot mingle speculative methods of salts and exact methods of salts. You have either psychology on the one hand or physiology on the other — but experimental psychology would mean psychology carried along exact experimental line, and that is not possible. You cannot exclude the speculative side.

Q. What do you mean by the speculative side?

A. The influence of the will and the influence of consciousness, and all those things which are bound to have an effect upon the action of the individual, and as to the value of those we simply have to use our speculation. We have to try to find out to what extent these things influence the experiment and that destroys their value from a scientific point of view.

Q. Assuming they could be conducted, would it be necessary to have control subjects?

A. It would be necessary to control the subject in each case by a long series of experiments with carefully known food and carefully known quantities of food to determine whether that individual's metabolism was at one and the same ebb all through the experiment. Only then could you possibly compare his performance with some performance under the influence of caffeine.

Q. Now, taking Professor Hollingworth's tests as he gave them, and considering that his subjects were out of his sight during certain hours, I believe they reported to him periodically, state whether or not they are such as to enable a scientific man to form a scientific conclusion.

A. I think they are, in part, but they are not of any value at all as scientific experiments.

Q. From his report, as made by Professor Hollingworth, was there any beneficial result shown physiologically or otherwise, so far as you could observe, in the cases of the subjects?

A. It all depends on what you call beneficial results. To my mind there was not.

The Court: That is not a matter of expert opinion, but

is a matter for the jury.

BY MR. MILLER:

Q. Is there any reason why children cannot take caffeine as well as persons of more mature years, and if so, why?

Mr. Sizer: That question was gone over by a number of witnesses in chief.

The Court: It is a matter in chief.

Mr. Miller: That is in response to the statement of Doctor Moyer, who is the only man who made a statement that there would be no difference between children and older persons.

The Court: That was denying a statement of your witnesses and now you cannot come back and prove your statement over again. That is a matter of which you had the burden.

Mr. Miller: Very well, if your Honor so holds.

BY MR. MILLER:

Q. I will ask you if you are acquainted personally with Dr. Schmiedeberg, whose deposition was read this forenoon.

A. Very well acquainted with him.

Q. How long have you been acquainted with him?

A. I worked under him for four years.

Q. State whether or not he is a physician or clinician; whether he practices medicine.

A. He has not the remotest idea of the practice of medicine.

Q. Is he a physician?

A. He has never practiced one day in his life. He is a physician because he has a degree of M.D., but he is not a practicing physician and never has practiced.

Q. What do you mean by a clinician?

A. I mean a practitioner.

Q. I will ask you whether or not you are familiar with the signature of Dr. Schmiedeberg?

A. I am very familiar with it.

Q. I will ask you whether or not on last week you saw in possession of counsel on the other side a signature of Doctor Schmiedeberg to what purported to be an opinion written to Harold Hirsch, respecting the product known as Coca-Cola.

Mr. Sizer: I object.

The Court: I do not see the bearing.

Mr. Miller: Because Dr. Schmiedeberg had stated that he had never written anything on that subject except that deposition.

Mr. Hirsch: He said he never had written any treatises or articles.

Mr. Miller: He said none except this deposition.

The Court: I think he said none but this opinion. Of course, I knew of the other opinion at the time, and I suppose that the witness had that in mind when he referred to that.

Mr. Sizer: Your Honor will notice that the deposition was practically the same as the opinion, and I take it he didn't know the difference.

Mr. Miller: If you have a witness that ignorant that he does not know the difference between an opinion and a deposition—

The Court: Let me see the deposition.

Mr. Miller: I do not understand your Honor's ruling.

The Court: I have not ruled yet.

Mr. Sizer: The question asked was about articles or treatises.

The Court: I cannot tell until I find the deposition. (After examining deposition.) It is true that he literally states, "Outside of this opinion," apparently referring to the deposition, "the opinion expressed here in this deposition," that he has written about Coca-Cola, but it is apparent to me that it has to be considered with reference to the question which was asked, which was if he had any occasion to write any articles or treatises dealing with caffeine. I do not think that question is material. I do not think that that calls for any mention of his having written a letter.

BY MR. MILLER:

Q. I will ask you whether or not you saw in the possession of adverse counsel last week—

The Court: I hold that is immaterial. The obvious purpose of the witness in answering was that he had not written any article or treatise for publication, and the whole matter is so thoroughly collateral and unimportant that I shall not allow it.

Mr. Miller: One reason for asking this was because I had no opportunity to cross-examine Doctor Schmiedeberg except by interrogatories.

The Court: If you want to call for the other matter for the purpose of showing contradictory statements, that is another thing.

Mr. Hirsch: Doctor Boos has had that other opinion and has had it for a week.

Mr. Miller: In view of the fact that the deposition has gone in, I have no objection to the opinion going in.

Mr. Hirsch: We have not.

Mr. Sizer: We will let it go in, then.

The Court: Where is it?

Mr. McConville: I asked counsel for it last night and I couldn't find it.

Mr. Sizer: We will put it in.

Mr. Miller: There are two of them, and one shows the date and the other does not, and we want the one with the date.

Mr. Sizer: It was about the 10th of last November.

The Court: The Court would otherwise exclude it, but by agreement of counsel the written opinion of Doctor Schmiedeberg, the original German letter, is to be introduced in evidence,—signed by Dr. Schmiedeberg, accompanied by a translation agreed upon by the parties.

Mr. Sizer: And it was offered by Mr. Miller.

Mr. Miller: I did not offer it, but I have no objection to it. I do not put it in as my evidence. I do not agree that it is true. I would like to have the deposition a moment.

The Court: How is this to go in? That should be clearly defined.

Mr. Miller: I want it to go in as an exhibit with the deposition of the witness.

The Court: For what purpose?

Mr. Miller: To show that Dr. Schmiedeberg on the 10th of last November wrote an opinion in response to a request of Mr. Harold Hirsch, and therefore it controverts his deposition when he says—

The Court: I hold that is immaterial. If it does not go in as an exhibit with the evidence I will exclude it.

Mr. Miller: Then I call your Honor's attention to the fact that the only person who communicated with him was Dr. Louis Schaefer.

The Court: Let me see the deposition. I know he said he was written by Dr. Schaefer, but I do not recall that he said that was the only person. The answer is:

> "Q. When and under what circumstances were you advised that your deposition was desired, and by whom?
>
> "A. By a friend of mine, Dr. Louis Schaefer, President of the Schaefer Alkaloid Works, Maywood, New Jersey."

That does not say that he was not written by any other person; he said he didn't know of any person that was connected with the Coca-Cola Company, and that is probably what you have in mind.

Mr. Miller: I read the deposition for the first time hastily last night and I might misquote it, but, at any rate,

whether ruled out or not, I would like to borrow one of those depositions long enough to interrogate the witness with respect to certain statements contained in it.

The Court: Then it is understood that that letter is not to go in?

Mr. Miller: That is what I understand. I do not agree that its contents are true.

Mr. Sizer: We leave it entirely to Mr. Miller. We cannot offer it, but if Mr. Miller wants it we are entirely willing to offer it and to have it filed with the evidence.

Mr. Miller: I ask it to go in only for the purpose of impeaching Dr. Schmiedeberg. If it cannot go in for that, it cannot go in at all.

The Court: It must go in for all purposes or none. If it goes in for all purposes, it may go in.

Mr. Miller: If it goes in as a part of our evidence which we cannot contradict, that is one thing; if it goes in for consideration by the jury for what it is worth, that is another thing.

The Court: I understood it was to go in that way, for what it is worth. You could show contradictory statements or anything else if you can by it.

Mr. Miller: Then with that understanding we are perfectly willing for it to go in.

The Court: Now, it goes in, then, by agreement, for any legitimate purpose.

Mr. Miller: Except that it is not offered as our testimony.

Mr. Sizer: You are offering it.

The Court: It goes in by agreement; it is not offered by either of you.

(The paper referred to is as follows:)

"OPINION CONCERNING THE CAFFEINE CONTAINED IN COCA-COLA AS REGARDS ITS EFFECTS UPON HEALTH.

By Dr. Oswald Schmiedeberg. (Translation by Dr. J. W. Mallet.)

I have been asked by Mr. Harold Hirsch, of general counsel for the Coca-Cola Company of Atlanta, Ga., to express my opinion on the question whether coffein (caffeine) in the quantity in which it is contained in the Coca-Cola syrup manufactured and put upon the market by the said company is injurious or detrimental to health.

In the indictment against the Coca-Cola Company it is said, 'The caffeine in this food product is derived from

waste tea leaves, and not from the cola nut.' As regards this assertion, it must at the outset be remarked that for the question of the significance of caffeine in its relation to health it is a matter of indifference from what source the caffeine of this 'food product' is derived, whether from tea leaves or from cola nuts, or whether introduced as pure caffeine. For the influence of the latter, in its effects upon health, there is only to be considered the quantity in which it occurs in Coca-Cola syrup.

Caffeine is the constituent upon which depend the significance of coffee, tea and some other food materials. This significance is far more widespread than that of alcoholic beverages. In all parts of the world, coffee and tea and other food materials containing caffeine, such as cola, Paraguay tea, and guarana paste, are made use of by the most widely different races of mankind, by people professing all forms of religious belief, by men and women, by young without special restriction, whilst alcoholic drinks are prohibited to Mohammedans by religious rule, and women and children, as well as many men, refrain from their use.

Notwithstanding the unparalleled wide distribution of these food materials, cases of illness from their use, which can be held to be due to their content of coffein, are not known. Coffein, therefore, in the quantity in which it is taken with these food materials, may with entire certainty be set down as harmless, on the basis of the experience obtained on so large a scale during several centuries.

In this respect the food materials containing coffein are quite essentially distinguished from alcoholic beverages and from tobacco, the misuse of which so easily gives rise to cases of poisoning and of illness.

The harmlessness of coffein in the food material under consideration is confirmed and explained by the nature of these food materials for the human organism, and it has led in all parts of the world, both civilized and savage, people to instinctively discover and use as food material all plants which contain coffein or the analogous theobromine of similar effect. These plants are the tea shrub, the coffee tree, the cola nut tree, the bush tea shrub (Cyclopia), the chocolate tree, the South American vine, paullliana sorbilis, which yields guarana paste, and finally two species of *ilex*, one of which furnished the so-called Appalachian tea of North America, and the other (ilex l'araguayensis) the Paraguay tea, or yuba mate, of the southern regions of South America. But it is not, as one might assume, the pleasant taste which has led to the use as food material of different products from these plants. An in-

fusion of Paraguay tea, for example, is far from being agreeable in taste, yet is very highly valued by the inhabitants of the region where the shrub is indigenous. Also the valued good flavor is given to coffee beans by roasting, and to the black infusion prepared therefrom by addition of sugar, milk or cream, and to the leaves of the tea shrub by addition of sweet-scented flowers. Hitherto no plant containing coffein or theobromine has been discovered which has not found use as food material.

All the circumstances already mentioned—the instinctive discovery of all so far known plants containing coffein or theobromine, in all parts of the world, their universally wide distribution in spite of their original lack of pleasant taste, making them uninviting—all these facts prove beyond doubt that the importance of these food materials depends exclusively on their content of coffein or theobromine. The action of coffein, with which only we have here to do, concerns, at the same time, in a quite peculiar way, the central nervous system and the muscular system on which the movements of the body depend. When the muscles and nerves are fatigued by severe or long-continued activity, activity can only be continued, if at all, by the most strenuous exertion of the will. Coffein in the quantities in which it is taken with food materials, so acts upon the nerves and muscles that the feeling of fatigue disappears, because the stimulus of the will more easily reaches the muscles, and the supply of energy of the latter can be more easily and efficiently used than in the condition of fatigue without coffein. Under the influence of the latter, also, the more strenuous intellectual activities are more easily prolonged, and the feeling of mental lassitude is less perceptible.

Coffein is hence a means of refreshing bodily and mental activity, so that this may be prolonged when the condition of fatigue has already begun to produce restrain and to call for more severe exertion of the will, a state which, as is well known, is painful or disagreeable.

This advantageous effect in conditions of fatigue of small quantities of coffein, as it is commonly taken in coffee or tea, might, however, by continued use become injurious, if it were in all cases necessarily exerted; that is to say, if by coffein the muscles and nerves were directly spurred on to increased activity. This is, however, not the case, and just in this lies the popularity of the effect in question: The muscles and the simultaneously acting nerves only under the influence of coffein respond more easily to the impulse of the will, but do not develop spontaneous activity, that is, without the co-operation of the

will. If after the use of coffee or tea no work is done, as for example, after taking coffee at the end of a dinner, muscles and nerves remain quiet as if no coffee had been taken. In such cases the pleasure which good coffee and tea procure are decisively in favor of their use.

This character of coffein action makes it plain that these food materials do not injure the organism by their coffein content, and especially do not by continued use cause any chronic form of illness as alcoholic beverages so easily do.

If strong coffee and aromatic tea, especially the so-called green kind, produce with some persons agitation, so that for instance, after the use of these beverages in the evening such persons suffer at night from sleeplessness, this does not depend upon the coffein, but upon the ingredient from which, as has been mentioned the aroma and pleasant taste of well prepared coffee and tea are derived. There are persons who cannot in general bear tea or coffee, while Paraguay tea, with its less agreeable taste, suits them well, in spite of its containing coffein.

Experience and the facts obtained by experiment make it therefore indisputable that the quantities of coffein which are for the most part taken in with coffee or tea used daily for a whole lifetime are non-injurious to health, since they neither give rise to acute or chronic poisoning, nor weaken the organism so as to dispose it to attacks of illness.

It may be asked further, how large are the quantities of coffein which are usually, or as a maximum taken in coffee and tea. A small cup of coffee, of 150 ccm — 5 ounces—which has been prepared from 15 grm.—230 grains of coffee beans—contains 0.1 to 0.12 grm.—1.5 to 1.8 grains of coffein, and the same amount is contained in a cup of infusion prepared from 5 to 6 grm.—75 to 90 grains of tea leaves. If it be assumed that a man daily, in the morning, at noon, or in the afternoon, and in the evening, drinks altogether five cups of coffee or tea, or partly coffee and partly tea, he takes in this 0.5 to 0.6 grm.—7.5 to 9.0 grains of coffein. These moderate quantities are thoroughly harmless. Many persons, especially women, in countries where tea-drinking is wide spread, may easily bring the number of cups to double or even several times these figures. Let us assume that the maximum daily ingestion amounts to ten cups of tea or coffee altogether. These contain 1.0 to 1.2 grm. — 15 to 18 grains of coffein. Even such doses cause no disturbance of health if they be taken, not in the form of pure caffeine all at once, but in coffee, tea and other prepara-

tions in a diluted state and in divided portions in the course of the day. In agreement with this is the direction of the Pharmacopoeia of the German Empire that the largest daily dose of coffein should not exceed 1.5 grm.—23 grains.

Coca-Cola Syrup contains, by the accordant analysis of Dr. Mallet, of the University of Virginia, and Dr. W. D. Bigelow, of the Department of Agriculture, 0.19 to 0.24 grm., in the average of 0.22 grms., or in round numbers, 0.25 grm.—3.8 grains of coffein in 100 grm.—1,540 grains of syrup. As regards content of coffein, therefore, 40 to 45 grm.—600 to 700 grains of Coca-Cola syrup—are equivalent to a cup, 200 grm.—3,000 grains to five cups, and 400 grm.—6,000 grains— to ten cups of coffee or tea.

From these data it follows in the most positive way that 200 to 400 grm. of Coca-Cola syrup taken in divided portions daily, will not be injurious to health. In certain respects, the Coca-Cola syrup is even more harmless than the corresponding quantity of coffee, or tea, since it does not, like these, produce agitation and therefore cause sleeplessness.

According to the communications which have reached me, about thirty grm.—one ounce of Coca-Cola syrup—is used to a glass of about 210 ccm. of the beverage. There might therefore be taken daily of this beverage 1,400—2,800 ccm. without any fear of injury to health, from the quantity of coffein contained therein. Rather might the amount of liquid and of sugar taken at the same time prove injurious by impairment of the digestive activity of the stomach. As a matter of fact, such large quantities of the beverage will, but rarely, if ever be taken. Most consumers will undoubtedly limit themselves to less. In such cases injury is entirely out of the question. Indeed, the misuse of Coca-Cola by taking it in excess, as so often happens with alcoholic drinks, anyway is probably not to be feared. Not only can no well-founded objection be urged against the manufacture of food products containing coffein by the introduction of this in any form, but rather should the extension of such manufacture be regarded with favor in the interests of the public welfare. Undoubtedly alcoholic drinks belong to the most injurious class of food products, and the contest against their use, and especially their misuse is thoroughly justified. This can be most successful only by seeking to replace alcoholic beverages by other and harmless food products. Among such harmless food products the most suitable with which to take up and carry through the war against alcoholic drinks are coffee, tea, cocoa, chocolate, and in general, all natural or arti-

ficial food materials which contain coffein or theobromine, on account of their advantages and agreeable effect above described.

Carbonated waters, for example, which are taken with pleasure for their refreshing action, will not fulfill the purpose in question, since they exert none of the special effects upon the organism that tea, coffee, etc., do. In the contest with alcoholic drinks it is of importance that the food materials which are to replace them shall be harmless, contain coffein or theobromine, and also actually be consumed upon a large scale. In this way Coca-Cola may be of value.

On the basis of the preceding explanation, I sum up my opinion thus: That Coca-Cola syrup represents a beverage containing coffein, and that, even in the maximum quantity which may be generally taken daily, it cannot, because of its coffein content, be accounted injurious to health."

BY MR. MILLER:

Q. I will ask you whether or not caffeine is a means of refreshing bodily and mental activity so that this may be prolonged when the condition of fatigue has already begun to produce restraint and to call for more severe exertion of the will, and if you say it is or is not, say why?

A. It is.

Q. Why?

Mr. Sizer: I object. That is a matter in chief and not contradicted by any of our witnesses.

The Court: I do not understand that question.

(The question was read.)

Mr. Miller: That was an answer that was borrowed from Doctor Schmiedeberg and he drew from that the inference that this was a beneficial agent, and I want to show by this witness that it is a non-beneficial agent for that very reason.

The Court: That does not affect the point, but I still do not understand the question.

(Question read again).

The Court: I catch it now.

Mr. Sizer: That is a quotation from Dr. Schmiedeberg and the witness answered that statement is true, and I submit he cannot go into his reasons why it is true. It is not in rebuttal of anything.

The Court: He agrees with Dr. Schmiedeberg.

Mr. Miller: I do not like to have adversary counsel cut my questions in two. I said: "If you say it is, say why."

Mr. Sizer: I do not want to cut your questions in two, but to cut the answer.

The Court: If he agrees with Dr. Schmiedeberg, it is not contradicting anything.

Mr. Miller: But here is the point: Dr. Schmiedeberg drew from this statement an inference that it was a beneficial agent.

The Court: That is a question for the jury to determine, whether it is beneficial or not.

Mr. Miller: One way they have to determine it is from scientific men. I submit if they can determine it from one scientific man they can from another. And this is a scientific man, and I want to know the conclusions he draws from that.

The Court: I exclude it.

Mr. Miller: If your Honor excludes part of the answer to the question, then I ask to withdraw the question.

The Court: You may withdraw the question.

Mr. Sizer: When he asks a question and it is answered, he cannot withdraw it.

The Court: He can withdraw that question. We must get along.

BY MR. MILLER:

Q. I will ask you whether or not any more harmful effects follow the use of tea and coffee than in the case of Coca-Cola and vice-versa, and if you say there is or is not, state why?

Mr. Sizer: That is not proper. He has stated the effects following the use of caffeine, and now if counsel wants to know the effects over again and your Honor holds that matter is competent, where will we end?

The Court: You brought in the question of coffee and tea, that it has an injurious effect, and therefore argued that caffeine in Coca-Cola has not an injurious effect, and they can rebut that. If you can show in rejoinder that that is due to other things in the coffee and tea, you can do it. We have started into the coffee and tea business and we will proceed.

Mr. Sizer: I object to the form of the question. He said "more harmful."

The Court: I did not catch that part.

Mr. Miller: This witness made that—

The Court: I cannot allow that.

Mr. Miller: Then I move to exclude—this morning I objected to a comparison between tea and coffee and Coca-Cola, and when it was ruled on against me I noted an exception and now I want to rebut that.

The Court: I do not think you made the objection in

that way. You made a general objection as to the effect of beverages. Coffee and tea were not specially mentioned.

Mr. Miller: Then I move to exclude the portion of the witness' answer as to the comparative effects of tea and coffee.

The Court: We will leave that until we get through with this witness. I do not preclude you, however, from raising that question.

BY MR. MILLER:

Q. Can caffeine administration be of any benefit to the health of persons?

Mr. Sizer: I object to that. I submit that is not proper.

BY MR. MILLER:

Q. I mean, in the form of beverages about which Dr. Schmiedeberg was asked.

Mr. Sizer: That is the very question in the law suit, and one on which all the witnesses for the Government were examined.

The Court: Now, I rule on that this way: If any of the witnesses have contended that it had any beneficial effect from the administration of caffeine in beverages, the Government may rebut that.

Mr. Sizer: I object to that form of question. He asked if any beneficial result can come from caffeine.

The Court: If any witness has testified to any particular beneficial result, then the Government witnesses may be asked about it.

Mr. Miller: That requires me to read that portion of Dr. Schmiedeberg's deposition throughout which dealt with the beneficial effects of it. I certainly think we ought not to disagree about that. I do not like to make the statement without reading it.

The Court: There is a good deal in that deposition that is objectionable that I did not exclude, on the ground that he stated generally, but there was not exception made.

Mr. Miller: I will ask leave to go over it and make objections. It was read very rapidly, I did not have a copy of the deposition before me.

The Court: It is like testimony taken in oral form. Counsel are supposed to make exceptions when they hear it.

Mr. Miller: He does undertake to set out certain beneficial effects.

BY MR. MILLER:

Q. Does or not caffeine relieve fatigue?

A. It does not.

Q. If caffeine excites the nerves, is that or not beneficial to health?

A. It is not.

Mr. Sizer: I submit that is a conclusion and not competent.

Mr. Miller: That is just exactly what the witness said; I am using his language.

The Court: I have allowed testimony as to the general effect on health. I understand that means it has got an effect on general health, I will allow it.

BY MR. MILLER:

Q. If caffeine be taken and the person sit silent—I mean, sit passive, and does not undertake to do any work, does it necessarily follow that the nerves of the person and the brain are artificially or over-stimulated?

A. It does not.

Q. Does or not strychnine have an influence on the muscles?

Mr. Sizer: I object to the strychnine business.

Mr. Miller: Well, this witness stated.

Mr. Sizer: It is immaterial if he did state it.

Mr. Miller: It goes to show what this witness knew about drugs, I suppose.

The Court: I think it is immaterial and we will not go into the strychnine matter. I mean by that it is too remote.

BY MR. MILLER:

Q. I will get you to state whether or not caffine acts very well on persons with heart disease.

A. I should never use it in heart disease.

Q. Why not?

A. Because it is too apt to cause an irregularity of the heart; it is not a good heart drug.

The Court: I think that is about the same as trying to prove it has an injurious effect.

Mr. Miller: That is in rebuttal to Dr. Schmiedeberg's statement.

The Court: That was the tendency of your testimony.

Mr. Miller: We wanted to show the harmful effects.

The Court: Yes, I think going back to beneficial effects, that is another way of proving it in chief. I limit this to where some different beneficial effect is—

Mr. Miller: (Interrupting) I want to get his answers and we will be through.

The Court: In other words, the proper purpose of rebuttal is not a repetition but the bringing out of the new points.

Mr. Miller: While the point is on my mind, I move to strike from this deposition the part that deals with chocolate as I see he has reference to chocolate here as one of the beverages that he is discussing, and I submit that is in chief.

Mr. Sizer: It is our testimony in chief that we offer—this deposition is our testimony in chief.

Mr. Miller: I insist that would be excluded under the ruling made by your Honor.

Mr. Sizer: Your Honor has excluded any questions of chocolate and cocoa on the ground that it had not been shown that theobromine in the chocolate and cocoa is similar in its action to caffeine, and that the caffeine in chocolate and cocoa was not sufficiently great to justify comparison between chocolate and cocoa and tea and coffee. This witness states that the physiological action of theobromine is the same as caffeine, and therefore I submit it is material to compare chocolate and cocoa with tea, coffee and Coca-Cola.

The Court: We will not start into that chocolate matter at this stage of the case; I sustain the exception.

BY MR. MILLER:

Q. Doctor, what is the effect of theocin and theophyllin, relatively?

Mr. Sizer: I do not think that is in rebuttal of anything.

Mr. Miller: That is in answer to what was drawn out as to the Allard case, because they were poisoning cases, and I have shown that caffeine was broken up into three groups.

The Court: Read the question.

(Question read as follows: "Doctor, what is the effect of theocin and theophyllin, relatively?")

The Court: You may ask whether they have the same effect on the human system.

Mr. Miller: Yes.

The Court: You may ask that question, the same physiological action, whether they do or not.

The Witness: There is no difference in their physiological action.

Mr. Miller: Well, that is all.

RECROSS-EXAMINATION,
BY MR. SIZER:

Q. You say, Doctor, there is no difference in the effect of theocin and theophyllin physiologically?

A. Yes, sir.

Q. How do you know that?

A. Never has been shown to be.

Q. Do you have any affirmative knowledge that they are the same in their effect?

A. The best authority I have on the subject for the action of poisons says they are identical.

Q. And what authority is that?

A. Kobert.

Q Well, and that means he says they are identical in their composition?

A. What I infer from his statement is he says they are identical in their action and their composition—and I infer from that statement—he is talking about the action of drugs, and when he says "identical," he means in both.

Q. He simply says the two are identical?

A. Yes, sir.

Q. And from that you draw the inference that they are identical in their action?

A. Yes, sir.

Q. As a matter of fact they are identical in their chemical composition?

A. Yes, sir.

Q. But no one knows whether they are identical in their physiological action or not?

A. Oh, yes.

Q. You don't know it?

A. I don't know to the contrary.

Q. I say, you don't know that they are identical, do you?

A. I think I do.

Q. Now, how do you know it only from that statement of Kobert?

A. May I explain?

The Court: Yes.

A. One firm in Germany puts out a substance as theocin and another puts it out as theophyllin. They would not call it theophyllin unless it were theophyllin.

BY MR. SIZER:

Q. And they call it theocin?

A. No, sir; they call it theophyllin.

Q. Well, is this the difference between the two, that theophyllin is formed in the body and theocin is a synthetic chemical composition?

A. There is that difference that you have applied to theocin, that theocin is a factory product.

Q. That theocin is the name of the manufactured article that contains the same elements and in the same

proportion that theophyllin is formed in the body, is that true?

A. Yes, sir; I want to help you; it is not only in the same proportion, but the same chemical constituents.

Q. Well, theophyllin is found in tea?

A. A trace.

Q. You don't find any theocin in tea?

A. Yes, you do, because theophyllin is there.

Q. Then, what you call theophyllin and theocin, you find it in tea?

A. There is no difference between the two.

Q. Now, Doctor, it is known, is it not, that caffeine is broken down in the system into theophyllin?

A. Yes, sir; that is known.

Q. And it is not known that any theocin is produced in the breaking up of caffine, is it?

A. A substance which is identical with theocin is formed in the body, so you could, if you wish, say theocin is formed in the body.

Q. Is that name of theocin properly understood as applying to the synthetic composition and theophyllin is a name that is applied to a substance that is found in the body or formed in the body?

A. No, sir. Theocin is the patented name of the manufacturer who wishes to protect his method of manufacturing, and theophyllin is the name of that substance and is put out as such a substance under that name by another house.

Q. I believe you studied under Dr. Schmiedeberg?

A. Yes, sir.

Q. Well, didn't you testify in the Bleached Flour cases that Dr. Schmiedeberg was the greatest living pharmacologist?

A. Yes, sir; the greatest who ever lived.

Q. I believe you say you do not consider Dr. Hollingworth's experiments of any value, Doctor?

A. Yes, sir.

Q. For the reason that they are based on psychology and not on physiology?

A. No, sir; you have that wrong.

Q. On what ground do you base them?

A. They are based on a thing which is called experimental psychology which does not exist.

Q. Are you an expert in psychology?

A. No, sir; but I am an expert in physiology.

Q. Then why do you undertake to criticise the experiments of a man who conducts experiments along a branch in which you are not an expert?

A. Because I happen to be an expert in physiology, and just as soon as you go far enough to experiment, you get into physiology.

Q. Well, didn't you cite in your testimony in chief some experiments made by Rivers & Weber?

A. Yes, sir.

Q. As proof that there was depression following the use of caffeine?

A. Yes, sir.

Q. Is it a fact that those were psychologists?

A. They are open to the psychic sphere—

Q. I say, they were psychological experiments?

A. No, not experiments.

Q. What kind were they?

A. Because they were carried on to the period of fatigue and they were physiological to a certain extent, but I will agree that the same criticism obtains in the case of the Rivers & Weber experiments.

Q. In other words, they were of no value for the same reason that Dr. Hollingworth's were of no value?

A. Yes, sir.

Q. Then why did you state them in support of your opinion?

A. I did not realize that fact.

Q. Well, you had read those experiments before you testified?

A. Yes, sir; cursorily.

Q. And you cited those two experiments in support of the opinion of yours expressed on examination in chief?

A. Yes, sir.

Q. And now you come along and say those experiments were absolutely valueless?

A. Yes, sir; because I had not considered them in detail when I testified before.

Q. And so in your opinion expressed in your former testimony you based it on experiments that had no value?

A. Yes, sir; but of very little value.

Q. Now, these Zenetz cases. Isn't it true that in all three of them the persons were sick before they were given the caffeine?

A. No, I think not.

Q. Didn't one of them have typhoid fever?

A. I would like to refresh myself from the notes, please.

Q. Don't you remember about that now?

A. I do not remember, I do in a general way, but I would like to see a report — I would not like to make a broad statement, Mr. Sizer.

Q. Now, just look and see if one of them didn't have typhoid fever.

Mr. Miller: We have had it translated and have the English, and it would probably be more readily referred to, but if he reads German.

The Witness: No, no case of typhoid.

BY MR. SIZER:

Q. Did any of them have any diseases?

A. Yes, sir; two of them were sick.

Q. What did they have?

A. One of them had pneumonia and another one had kidney condition, a chronic nephritis.

Q. And the third one had a heart so hard that you could not cut it with a knife?

A. Yes, sir; all three of them had a heart like that.

Q. And at least two of them were sick before the caffeine was given?

A. Yes, sir; that is why they gave them the caffeine, because they were sick.

Q. What about the other, the third one was reported as not well?

A. No, sir; that was a mistake.

Q. What was the report as to that third one?

A. Not feeling quite well, just as you do not feel quite well today.

Q. Well, you need not make any comparison. Isn't the report there that she was not feeling well?

A. The report says she was a healthy young woman.

Q. Well, it says that she was unwell?

A. No, sir; not feeling quite well.

Q. Just translate the literal language, that is true, isn't it, she was unwell, not very well?

A. No, it says: I will read the German: (The witness read the German text) which means because she did not feel quite well, just what I said.

Q. Did not feel quite well?

A. Yes, sir.

Q. That is your translation of it?

A. Yes, sir.

Q. Now, read the heading of that article.

A. (Reading). "The use of caffeine in diseases of the heart and kidneys."

Q. That case comes under that head?

A. No, sir; it does not, because he distinctly says this woman is not well—

Q. (Interrupting.) That came under that head that you gave awhile ago?

A. No, that refers to his deductions as to the use of caffeine in heart and kidney diseases, and he gave the opinion that it should not be used in those cases.

Q. Well, it is under that same article?

A. Yes, sir.

Q. And under that same head he gives these three cases, and says that caffeine should not be used in heart diseases?

A. Yes, sir; and kidney diseases.

Q. And kidney diseases?

A. Yes, sir; I have myself reported cases of well persons in connection with other subjects—

Q. (Interrupting.) I am not asking you anything about what you have done—I desire now to ask you about the tube that you had or that you referred to as being used on the rabbits—

The Court: (Interrupting.) As it is now two o'clock, we will adjourn until tomorrow morning.

(Thereupon, the Court, at two o'clock p. m., adjourned until nine o'clock a. m., Tuesday morning, April 4, 1911.)

CHATTANOOGA, TENNESSEE

TUESDAY MORNING, APRIL 4, 1911

NINE O'CLOCK, A. M.

Court met pursuant to adjournment.

Appearances: Same as before.

The Court: I have been considering one question that arose at an early stage of the case and on which I either overruled the exceptions or took no definite action at the time. That is the quetsion as to the competency of evidence as to the meaning of the words "Poison" and "Poisonous," as used in scientific works, by scientific men. After carefully considering the Act, I have concluded that the words "Poison" and "Poisonous" as used in it are used in their ordinary sense and I therefore exclude from the evidence any testimony of any witness on either side as to the meaning of the words "Poison" or "Poisonous" as used in science. I do not exclude any statement by any witness in so far as it throws light on his own testimony as explaining any opinion that he expresses when he declares that a given substance is or is not a poison or is or is not poisonous, but I do exclude that evidence in so far as the scientific meaning of the words "Poison" and "Poisonous" might be regarded as controlling the questions in this case. I do not, of course, exclude any extracts from any scientific authors that may

have been introduced in evidence containing the words as to the specific effect of any given medicine or drug or substance, but merely exclude the scientific definition as a controlling factor in this case.

DR. WILLIAM F. BOOS,
resumed the stand and testified as follows:

CROSS-EXAMINATION,

BY MR. SIZER,

Q. I want to ask you one more question about the Allard case: It is not a fact that the report of that case shows that the caffeine was administered to counteract the effect of theocin?

A. I don't remember whether it was or not. If it was, I should consider it a very great faux pas on the part of the man who administered it.

Q. He made a mistake?

A. Yes, sir; he would intensify the action of the theocin.

Mr. Sizer: I believe the report of that case has been put in evidence.

Mr. Miller: I think the report of that and of the Lemaire and of the Zenetz cases are all in evidence.

Mr. Sizer: I think you said they would be.

Mr. Miller: They are all in evidence; if they have not been copied, they will be.

The Court: Have you any disagreement as to the proper translation?

Mr. Sizer: They are all translated by agreement.

The Court: There seems to have been some conflict of opinion as to the condition of the lady.

Mr. Sizer: There was some contradiction on that—

The Court: I do not want any disagreement or misunderstanding as to the character of the translation.

Mr. Sizer: I think that was cleared up. They gave a literal translation. It was meant: "Not very well."

The Court: One of them said she did not feel entirely well. You had better not have any misunderstanding about that.

Mr. Sizer: We will look and see the copies.

Mr. Miller: There are three that I now pass you—that is the Zenetz, the Allard and the Lemaire cases, but I want to reserve the right if Dr. Boos says that is not a correct translation, to let him correct them. I pass them to counsel now. I understand it is a correct translation, but I am not a German scholar myself.

Mr. Sizer: Now, taking up the Zenetz case, your Honor will remember that you called attention a few days ago to the fact that the article consisted in part of a dissertation by Dr. Zenetz on the use of caffeine generally and then that was followed by the report of the two cases.

The Witness: Of three cases.

Mr. Sizer: But this paper still has the whole thing in, the first four pages is the dissertation.

The Court: That will be excluded.

Mr. Sizer: It that is offered I move that it be rewritten so as to exclude the opinion by Dr. Zenetz which is not competent or relevant.

Mr. Miller: As a reported case, that might be excluded, but on cross-examination we asked some of their witnesses on the other side as to the ability and standing of Dr. Zenetz—

The Court: That is the very thing I intended to exclude, that is was simply admitted originally as a recorded instance of what he thought was caffeine poisoning.

Mr. Miller: On cross-examination of their witnesses we asked them as to the standing of Dr. Zenetz and if he did not draw certain conclusions as to this drug.

The Court: I do not recall any. I recall excluding his opinion in one instance and if it was admitted otherwise it escaped my attention. I shall exclude it.

Mr. Miller: Doctor Marshall, and, I think —

The Court: I intended and I think distinctly stated at one time that the part of the article in the nature of a treatise for an expression of opinion as of the writer, was excluded, that all that was admitted was the record of the case.

Mr. Miller: To say the least of it, we have no objection to admitting the conclusions drawn by the author there, if that is what your Honor rules. If your Honor overrules that —

The Court: I do so.

Mr. Miller: Of course, we think that is a legitimate part of it and should be permitted to be read with the rest, and we except to that ruling.

The Court: You may note the exception. Who made that translation?

Mr. Hirsch: Dr. Boos made the translation of the Zenetz case.

The Witness: I made the translation of the Zenetz and Dr. Emery translated the other cases.

The Court: If there is any agreement as to the correctness of the translation, I will take it up.

The Witness: We agreed on the Zenetz case.

BY MR. SIZER,

Q. Would the effect of administering a substance to a patient, whether a rabbit or human being, have any bearing on the physiological effect of that substance on the patient?

A. It might possibly to a certain extent, yes.

Q. For instance, if you were trying to give a certain kind of medicine to a child or to an insane person, a person incapable of exercising judgment and self-control, would it make any difference whether you dropped that substance in the mouth of the patient by a dropper or whether you first put a block of wood in the patient's mouth to hold his mouth open and then put the tube through the block and then administered the medicine into the stomach through that tube?

A. You are talking about children or insane patients?

Q. Any person incapable of exercising judgment and self-control.

A. I do not wish to compare children or insane persons with rabbits.

Q. I didn't ask you to do that. Just answer the question as I asked it.

A. Oh, yes; an unwilling being, a human being, would be decidedly affected by such treatment.

Q. Is it not further true that the mixing of food in the mouth with the saliva has an important effect on the assimilation of the food?

A. I do not know that we were discussing the food in that way —

Q. Just answer the question.

(The question was read to the witness.)

A. Did you ask me before about feeding a patient?

Q. Answer the question.

Mr. Miller: I submit that is not a pertinent question. There has not been any evidence that food was administered through a tube.

The Court: Objection overruled.

BY MR. SIZER,

Q. I asked for an answer to that question.

The Court: The question will speak for itself and if the witness wants to qualify his answer he may do so.

A. Of course it would affect the digestion if it were a food such as would be affected by the action of the saliva. If it were a solid food, the solid food would be acted on by the saliva but not the liquid food.

Q. A carbohydrate?

A. Not in solution; it is not acted on.

Q. It is not acted on by the saliva?

A. It is momentarily but that ceases when the food reaches the stomach.

Q. It is acted on while the food is passing from the mouth to the stomach?

A. I think if you were to drink a solution of a carbohydrate that the action would be impossible to trace because of the rapidity of passage from the mouth to the stomach.

Q. But you have stated it would have some effect on it?

A. It would not have any effect on the sugar in the least. It would have some effect on the starches but not on the sugar.

Q. Now, would the effect of the rubbing of the tube on the mucous lining of the stomach have any effect on it?

A. Hardly.

Q. Might it not destroy some of the cells in the lining of the stomach?

A. In the lining of the stomach did you say?

Q. The mucous membrane?

A. If it is done very roughly, that is conceivable, but I know of patients who have had their stomachs washed out every day in the year and have had no trouble from the tube.

Q. Would it be advantageous to a person to have the tube put in his stomach that way?

A. Most decidedly when he has catarrah of the stomach.

Q. But suppose he was well?

A. I don't think it would hurt him a bit.

Q. To have his stomach washed out with a rubber tube?

A. That is my opinion.

Q. Have you ever tried it with a healthy man?

A. I have tried it on myself.

Q. How often?

A. I washed out my stomach to learn how it feels once every day for a week. I did that to find out what the sensations of a patient were. Sometimes we have trouble in passing it and I wanted to know where the trouble was and I passed that tube on myself and after having passed it for a number of days I did not mind it.

Q. If you kept that up for sixty days would not that result in loss of weight?

A. No, sir.

Q. You are sure of that?

A. I am sure there is no reason why it should.

Q. You have never tried it more than a week at a time?

A. No, sir; never tried it more than a week at a time, but if a man with stomach trouble gains in weight on the application of the tube, you would not expect a healthy person to lose weight.

Q. Does that necessarily follow?

A. Yes, sir. The healthy person's stomach is much more resistant than the stomach of a sick person.

Q. Are you speaking from actual experience?

A. Yes, sir.

Q. Or theoretically?

A. No, sir, I have done a great deal of stomach work. That is practically my work in my practice, stomach work.

The fact is you give them that treatment where the disease is causing them to lose in weight, where there is decided interference with gastric digestion and in consequence of that there would be loss in weight, but these people do not remain at the same weight. When the stomach is washed out, they gain in consequence of the treatment.

Q. Is it easy or difficult to put this tube down into the stomach of a rabbit without causing the death of the rabbit?

A. It is all a matter of technique.

Q. In other words, if you do it properly there is no danger of killing the rabbit?

A. No danger whatever.

Q. And if a man kills half a dozen rabbits endeavoring to put the tube down into their stomachs, that shows that the man is either incompetent or careless?

A. If he stopped killing them after killing a half a dozen, it shows that he learned the method.

Q. That he is improving?

A. That he has the method.

Q. But it does not show when he starts out that he was incompetent and did not know how to do it?

A. That is so with every person who passes the tube.

Q. In other words, his technique was not good.

A. He was awkward.

RE-EXAMINATION.

BY MR. MILLER:

Q. Is there any starch in Coca-Cola or Coca-Cola syrup as manufactured?

A. I believe there is some starch in the cola but I don't know how much of that gets into the Coca-Cola syrup.

Q. Did you hear the formula as given by the analyst?

A. I did.

Q. Was there any starch in that formula?

A. I think not.

Q. Would that distinction you draw as to insane persons or children being forced to take the tube through a block, as counsel expressed it, hold good where only Coca-Cola syrup would be administered through a stomach pump to a rabbit and the rabbit would afterwards eat his food in a normal way?

A. If the rabbit is eating his food in a normal way, it would not in the slightest degree affect his digestion because this is to determine the action of this one substance, independent of his food.

V. K. CHESSNUTT,

the next witness called by the Government in rebuttal, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION.

BY MR. MILLER:

Q. Mr. Chesnutt, what is your profession?

A. A chemist.

Q. What is your occupation and connection with the Bureau of Chemistry at Washington?

A. Assistant Chemist in the Bureau of Chemistry, drug laboratory.

Q. State whether or not you have had occasion to analyze coca of both varieties for the purpose of ascertaining what per cent of tannin there is in it, and if so, tell us what the percentages are.

A. I have. I have found in the Truxillo variety .18 of one per cent, in Truxillo, that is the Erythroxulon Truxillense: and in the variety Huanuco, I found .26 of one per cent.

Q. When did you make these analyses, Doctor?

A. About one week ago.

Q. I will get you to state whether or not you found or have had occasion to determine the percentage of tannin that is in the cola nut.

A. Yes, sir.

Q. What did you find?

A. I found in the cola nut 1.12 per cent.

Q. That is how much?

A. That is 1.12 per cent.

Mr. Miller: You may cross-examine him.

CROSS-EXAMINATION.

BY. MR. HIRSCH:

Q. Doctor, will you tell us your method or how you

ascertain the tannin in both species of the coca?

A. I used the method described on page 150 of the Bulletin No. 107 of the Bureau of Chemistry Methods of Analyses. It is the Proctor modification —

Q. (Interrupting) Bulletin 107?

A. Yes.

Q. And at page 150?

A. Yes, sir. It is the Proctor modification of the Lowenthal method.

Q. Could you give me the details of that method?

A. Yes, sir.

Q. Well, please do so.

A. The most essential thing is to be sure of your oxalic acid.

Q. And what do you mean by that?

A. To know that it is absolutely pure, and that I did, I checked it up with a number of substances, permanganate of potash, and they were bound to agree perfectly. That is a preparation made up by another individual so that we were absolutely sure of the oxalic acid. I crystallized it several times, and took every precaution to have that pure. That was our starting point.

Q. In other words, you got your oxalic acid pure?

A. Yes, sir; as pure as it could be made under those conditions. Then we used a solution of sulph-imbegotate of soda which was free from the ordinary impurities, and it was especially adapted for this purpose.

Q. Especially adapted for this purpose?

A. Yes, sir.

Q. In what way?

A. Because it was free from any other coloring which would not give a clear end point than the citration. I made up that according to the strength given in the bulletin and then made up the other solutions, saturated solution of salt to which sulphuric acid was added. That makes more complete the precipitation of the tannin.

Q. What did you precipitate the tannin with?

A. I am describing the general method. You asked me for the particulars. I am giving the particulars of the method.

Q. Well, give me the details.

A. That is what I am doing.

Q. You will tell me how you precipitated the tannins?

A. Yes, sir. We made up a solution of saturated salt solution in distilled water to which was added the amount of sulphuric acid required under Bulletin 107 to make one of the mixtures to precipitate the tannin. We used in addition the talc, purified talc, free from anything

that would have affected the reduction of the permanganate of potash used. I think I have all those. If you will read what I have described, we will see if I have given them all.

The Court: We can't go over and read the testimony.

The Witness: I think I have given them all as described in the Bulletin there. Do you wish further details?

Q. Yes.

A. The coca leaves used was one of the authenticity of which is vouched for by Dr. H. H. Rusby of New York, our expert pharmacologist. I used these leaves because I knew there could absolutely be no mistake about them.

Q. That, you took that from what Dr. Rusby said, that they were coca leaves?

A. Well, he looked over them and Dr. Rusby is an authority, he has traveled and knows these varieties.

Mr. Sizer: I object to that.

The Court: Just state what you did.

The Witness: I took ten grams of the finely powdered leaf, weighed that out carefully and diluted it for half an hour with 200 cc of water, and allowed it to cool. Transferred to 500 cc flask and diluted with water to volume—that is I had then ten grams of the coca leaf dissolved in 500 cc of water. Then I filtered and allowed the first portion of the filtrate to be discarded. Then I filtered the remainder, and of that I took 10 cc. Then to this 10 cc I added 750 cc of distilled water and then added 25 cc of this solution of sulphimbegotate of soda. I had then the coca leaves and the extract of the sulphimbegotate of soda and with that I took permanganate of potash and allowed that to go in over the buret and carefully measured the volume of permanganate of potash required to bring the sulphimbegotate of soda, which is a blue solution, to a suitable golden yellowish color. I stopped citrating at that point and read the reading on the buret. I got the reading which we will designate as A. I took all this solution of coca in the 500 cc of water and I took 100 cc of that to which I added 50 cc of the gelatin solution. This gelatin solution was made from first-class gelatin which was the best gelatin which we could find. A gelatin that was used in fact for making bacteriological culture tests. So it was free from any substances, and also I added 100 cc to this and then I added to that 50 cc of gelatin mixture, dissolved in saturated salt solution and took precaution to have that saturated, and then that makes 150 cc. I added 100 cc of the saturated solution of salt to which the sulphuric acid had been added. I

called your attention to the fact that I used saturated salt solution, and I also used sulphuric acid, both of these helped to precipitate the action, and give a more complete precipitation of the tannin. Then in addition to that, I made 250 cc—I added 50 grams of purified talc. This was shaken up for several minutes and allowed to subside when it was filtered off. Then I took 25 cc of this solution in 250 cc, 25 to 250 equals 1/10, the number I took, 100 cc of the coca preparation. In this then I took an exactly equivalent amount, having taken 25 cc which is 1/10 of the amount—I began with 10 cc of solution, and I took the same solution after I had added these various precipitates. I had then in that way precipitated the tannin according to the method given in Bulletin No. 107. And then I triturated this mixture after having added 750 cc of water, the same amount I had in the first case, and the 25 of sulphimegotate of soda solution in the second case—so I had precisely parallel solutions and made a reading. The number of cc used in this way will be represented by B. Then A means the larger reading which I got and the smaller reading which I got by B, when the tannin was excluded, giving me the reading B which represents the amount of the tannin in the 10 cc of the original substance taken, that is 1/10 of 500— or rather it is 10 cc to the 500 cc used.

Q. And the method you have given is put down in the bulletin as the official method to ascertain tannin in tea, is it not?

A. Yes, sir; tannin in tea.

Q. Do you know tannin in tea will react to the same agents as tannin in coca leaves?

A. I don't know it.

Q. Do you know that the salt in the sulphurous acid may precipitate or will precipitate other things?

A. I did not use sulphurous acid. I used sulphuric acid.

Q. Do you know whether it will precipitate other things besides the tannin?

A. I do not.

Q. Do you know if gelatin will precipitate the tannin in coca leaves?

A. It is commonly believed so.

Q. Do you know so?

A. It is the official method which has been used for the past ten or fifteen years at least.

Q. For tannin in tea?

A. Yes, sir.

Q. But not in coca leaves, Doctor?

A. I have no official method for determining that.

Q. How do you know gelatin will precipitate all the tannin in the coca leaves, or do you know?

A. I don't know.

Mr. Hirsch: Then you may come down.

Mr. Miller: Hold on.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. In your opinion, state whether or not that is the proper method for precipitating the tannin and to ascertain that which is the coca?

A. I do not think that is the proper method.

(Witness excused.)

DR. H. C. FULLER,
recalled by the Government,, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Fuller, could you obtain the entire amount of caffeine from a substance containing caffeine by the use of animal charcoal such as you described in your examination in chief?

A. I could.

Mr. Sizer: That is exactly what the witness testified on original examination. He undertook to say there was .17 of one per cent. of caffeine—it is simply reaffirming and reiterating his former testimony.

The Court: Hardly that, I think, Mr. Sizer. The specific objection was pointed out by your witness to his method of animal charcoal. I think he may be allowed to explain why in his opinion that was correct. That question was not gone into.

BY MR. MILLER:

Q. I will ask you whether or not animal charcoal is the customary method of bringing organic substances from coloring matter?

A. It is.

Q. State whether or not you have had much or little experience in the working with and the use of coca and cola?

A. I have.

Q. Are you or not prepared to express an opinion as to the percentage of tannin in coca, and if so, tell us what it is.

A. I am.

Q. What would you say it is, Doctor?

A. I should say—

Mr. Sizer: Unless the witness has made some experiments himself along that line, his opinion is not admissible.

The Court: I understood the witness to say that from his experiments or experience as a chemist, he was prepared to express an opinion, and I understood him to indicate that his experience had qualified him.

Mr. Miller: I thought he qualified in that respect.

BY MR. MILLER,

Q. Please state, in your opinion, what is the percentage of tannin in coca and if there is any difference in the two varieties of coca, tell in which it predominates.

A. I think there is less in Truxillo than in the Huanuco.

Q. In your opinion, what percentage is there in both?

A. I never have made—

Mr. Sizer: That is not a matter of opinion, it is a question of amount, of a specific substance. That is a question of fact to be ascertained by actual examination or analysis.

The Court: Where the fact is the result of a chemical process, I think chemists are qualified to express an opinion, and you may cross-examine him as to his source of knowledge.

The Witness: I want to say that I have never made any determination of the tannins in these substances. It is simply my opinion from experiments made with solutions of the products.

BY MR. MILLER:

Q. Well, based on that, I ask what is your opinion as to the amount of tannin in these varieties?

A. Well, I should say there was about ten times as much tannin in cola than there is in coca—

Q. (Interrupting) I am not asking you about cola, now, but I am asking as to the two varieties of coca, the approximate percentage.

A. I can't give the exact percentage.

Q. I have not asked for that. I asked your opinion, if you have one, based on your experimentation and your observation and your work with these two varieties of coca.

The Court: Well—

Mr. Miller: I meant to ask from his experience and observation and his work, from seeing work done under his observation, he was prepared to express an opinion as to the percentage of tannin in the two varieties of coca.

The Court: If your observations with the working of these solutions has given you such information as a scientific man, and has given you experience with reasonable approximation to answer as a scientific man, give a scientific opinion, you may do so, but if it is from surmise on your part, you will not so state.

The Witness: I want you to understand that my own opinion that I am giving you is based on my work with the cola nut also.

Q. Well, base it on your experience with everything that has tannin in it, if you wish to.

A. I am of the opinion that there is about .2 of a per cent of tannin in the coca leaf. Now, possibly it it a little more in the Huanuco variety than in the Truxillo but whether the percentage would be very much augmented, I am not prepared to state how much.

Q. Can you state the amount of percentage of extracted matter that is found in Coca Cola syrup made from Merchandise No. 5 due to the use of Coca and Cola?

A. I can.

Q. How can you state that, Doctor?

A. I can state that because I have made analyses of Merchandise No. 5 to determine the total extractive matter. Knowing the total extractive matter that exists in California wine and assuming it was white California wine, which has been represented by the other side, I can determine how much came from the coca and how much from the cola and then by simply taking the preparation which Merchandise No. 5 was mixed with the Coca Cola syrup, it is a very simple matter to determine how much of the extractives from coca and cola would get into the Coca Cola syrup.

Q. Have you got a chart that would show that, that has been prepared by you as a basis, taking as a basis the analysis that was reported by Doctor Mallet containing the total extractive of 4.25 in one ounce of syrup and 3.42 in another and 3.85 in another?

A. Yes, sir; I have such a chart.

Q. Will you just show us how it has been worked and what was the percentage of cola and coca is relatively in the two.

A. Then—the extractive matter from coca and cola —

Q. (Interrupting.) You might explain that to the jury—the extractive matter in Merchandise No. 5.

A. The extractive matter in Merchandise No. 5.

Q. Interrupting.) Just keep that chair still please, Doctor.

A. All right—the extractive matter in Merchandise No. 5 was 4 per cent. Now there are 2 per cent due to wine that percentage has been worked out as the result of a large number of experiments on light California wine, and that would leave a balance of the extractive in that, the large amount, it would be due to the coca and cola. Now knowing the weight of a given volume of Merchandise No. 5, it is a very simple thing to figure out how much of that percentage, of that 2 per cent. would be due to coca and cola. Knowing that there are fifteen gallons of Merchandise No. 5 put into 1250 gallons of syrup, you of course can at once figure how much of this would be due to coca and cola in that 1250 gallons.

Q. What did you find that to be?

A. .0185 per cent., or one part in 5283.

Q. That represents the total coca and cola product in Coca Cola syrup?

A. That is the lightest amount possible.

Q. Are you familiar with the reaction and reactive agents employed by Drs. Mallet, Caspari and Sadtler as testified to by them as applied to the tannins in coca and cola?

A. I am.

Q. I will ask you to state whether or not you have made any experiments with those reactive agents on Merchandise No. 5 during the progress of this trial since the testimony of those three gentlemen or on coca and cola extracts to determine as to the amount and action and behavior of the tannins in these respective mixtures.

A. I worked on the extract of coca and of cola.

Q. What did you find with respect to the behavior of the tannins in coca and cola when the reactive agents as indicated by the three witnesses referred to were applied?

A. You mean how did each reagent act?

Q. Yes; how did the tannins behave, in other words?

A. They behaved exactly alike.

Q. Is it possible in your opinion to determine from the application of these reactive agents as to whether or not the tannin that is included in the mixture is exclusively that of cola or exclusively that of coca, or whether a mixture of both?

A. It is impossible.

Q. I will ask you to file that first chart which you exhibit there as exhibit No. 1 with your testimony and let it be so marked.

The Court: That may be filed, but I do not see any

necessity of a chart for such a simple statement.

Mr. Miller: It is rather intricate.

The Court: I do not see the intricacy, but without objection it can be filed. I see no necessity of a chart. A chart should be limited to a summation of figures that can only be understood in their relations one to the other by the chart and not for a simple statement of that kind.

Mr. Sizer: I move to exclude the chart, or, if it is not admitted, I object to its admission.

The Court: I sustain the objection.

Mr. Miller: Note an exception.

BY MR. MILLER,

Q. I will ask you to state whether or not you have prepared any tabulation of or made any computation showing the relative percentage of tannin as coming from coca that there would be in either Merchandise No. 5 or Coca Cola syrup, based on a statement of Dr. Schaefer as to the amount employed.

A. Yes, sir, I have.

Q. What was the result of your calculation in that behalf and what percentage did you compute of tannin?

A. omputed the tannin from cola on the basis of two and a quarter per cent. and on coca as .25 per cent. or one-fourth of a per cent.

Q. What is the result of your computation?

A. It would give .00011 per cent. of tannin to the coca in Coca Cola syrup, and .0004 per cent. due to the cola in Coca Cola syrup, assuming that it was all taken out of there.

Q. That would mean one part of coca tannin to how many parts of total mixture?

A. I think it is 850 some odd thousandths. I forget the exact figure.

Mr. Miller: I would like to have this chart filed.

A. One part in 853,000 of tannin due to coca and one part in 248,000 of tannin due to cola.

Mr. Sizer: I object to that; that is the same kind of a chart.

The Court: I think a chart that merely emphasies or fixes one portion of the testimony before the minds of the jury in black letters when it is not a matter that requires illustration by a chart and where graphic illustration does not aid, should not be permitted.

Mr. Miller: I ask that the witness be permitted to have that before him, he cannot carry those figures in his head.

The Court: Certainly not—he can use it to refresh his memory himself, but where a graphic illustration brings out the idea, that is another thing.

BY MR. MILLER:

Q. Now, I will ask you to state whether or not you have had occasion to test the Coca Cola syrup as compared with Merchandise No. 5 and likewise as compared with coca extract to ascertain whether or not there is any flavor imparted to the Coca Cola syrup by either Merchandise No. 5 or coca extract.

A. I have.

Q. Is there or not any odor or flavor imparted thereby?

A. There is not.

The Court: I want to say that I will make the same ruling about that chart, about the caffeine in tea and coffee; that will be removed from the blackboard.

BY MR. MILLER:

Q. Have you a sample of cola extract made up by you personally?

A. Coca or cola?

Q. Coca.

A. I have.

Q. Have you got it with you?

A. Yes, sir.

Q. I will ask you to produce it.—Was that prepared personally by you from the leaves of the coca?

A. It was.

Q. State—if you will kindly open that and pass it to the jury that they may make a test of the odor,—

Mr. Hirsch: Before he passes that to the jury we want to inquire how he made it.

Mr. Miller: I am quite willing that they should and in this connection I wish to state that the jug of Merchandise No. 5 was filed and before that is passed to the jury I wish to ask that that Merchandise No. 5 be passed along with that extract that the jury may smell both.

The Court: We will first find out where the coca extract comes from.

BY MR. MILLER:

Q. You say you made that yourself, tell us how you made it.

A. I made that from some carefully selected leaves. I have a sample of the leaves here. (Indicating.)

Mr. Sizer: We would like to have that bottle, to have the privilege of inspecting it.

BY MR. MILLER:

Q. It this the character of leaves from which that was made?

A. Yes, sir; some of the same leaves from which that was made. Those leaves were from a lot of coca leaves as they ordinarily occur on the American market. They were tested and found to contain cocaine, that they had anesthetic properties. The extract was made up with a solution of alcohol and water, exactly as the Pharmacopœia prescribes for making up fluid extracts of coca. It depends first on the removal of a large part of the extractive matter by a volume of solvent, not quite equal to the entire amount of finished product, and then a further extraction with this same solvent to exhaustion. Then evaporating the last portion and mixing it with the first portion it gives a preparation known as fluid extract of coca leaves.

Mr. Hirsch: Now, we object to that. He explains that it is fluid extract of coca leaves; it has nothing to do with the way Merchandise No. 5 is prepared and he does not give the amount of alcohol nor the solvent nor the method used. It may have cocaine in it and everything else in it; we do not know.

The Court: The objection is overruled.

BY MR. MILLER:

Q. What is the percentage of tannin in this mixture?

A. I do not know.

Q. Approximately what percentage?

Mr. Sizer: I object to that; he says he does not know.

The Court: I don't know whether he means literally that he does not know or that he does not know the exact percentage.

BY MR. MILLER:

Q. I mean the approximate percentage; I do not mean whether you tested it out yourself personally, but approximately the amount of tannin.

A. I do not know; I cannot give an opinion on that offhand.

Q. I will ask you whether or not you heard Doctor Schaefer's testimony as to the process which he employed for making Merchandise No. 5.

A. I did.

Q. State whether or not in your opinion the use of the hydrocarbon that he used which I understand to be toluol, would remove any of the tannin?

A. No.

Q. Would any other process through which he put that leaf, remove any tannin, and if so, what?

A. You mean before it was extracted with the wine?

Q. Before it became Merchandise No. 5.

A. No, sir.

Q. Would or not any of the flavoring matters be removed, and if so, how and why, before it went into Merchandise No. 5?

A. Yes, sir; they would all be removed.

Q. Now, in what process?

A. By the toluol and by the subsequent steaming process.

Q. How does the steaming serve to remove the flavoring matters and odors?

A. They are removed because they are volatile. That is the process used to remove the flavoring agents from a great many flowers, leaves and things.

Q. Why would this toluol remove any of them?

A. Because they are very soluble in oily mixtures of that kind.

Q. Now, I ask you what you know as to that jug of Merchandise No. 5 which was produced to Dr. Mallet, where you procured it and whether it is Merchandise No. 5.

A. I don't think I analyzed that particular jug.

Q. I will ask the Marshal to bring the jug of Merchandise No. 5 down here and ask you to state if it is Merchandise No. 5 and if you have had occasion to examine it since produced.

Mr. Sizer: He says he did not alalyze it.

Mr. Miller: This witness said he could detect it by the peculiar toluol odor.

Mr. Sizer: He did not say that.

The Court: He can tell whether it is Merchandise No. 5 or not. If he can, he can do so, and if he cannot, he can say so.

BY MR. MILLER:

Q. Did you or not work with Dr. Emery after the sample of this Merchandise No. 5 was taken from this jug by consent of parties last Saturday?

A. No, sir, I did not.

Q. Have you or not examined samples of Merchandise No. 5?

A. I have.

Q. State whether or not this particular extract of coca which you made up yourself resembles Merchandise No. 5 as to flavor or odor.

A. It does not.

Mr. Miller: I wish to offer this in evidence as Exhibit No. 1 with Dr. Fuller's re-examination.

(The exhibit was marked as requested. It is the bottle containing the fluid extract of coca that the witness has

been testifying about.)

BY MR. MILLER:

Q. Is there any difference in flavor between the coca tannin and the cola tannin as respects the gelatin or cinchonine?

A. There is not.

Q. Is there any difference in their behavior as respects the cinchonine sulphate?

A. No, sir.

Q. Is it possible in your opinion, speaking from your observations and experiments with Merchandise No. 5 and with the extracts of cola and of coca, should you mix the tannins of both coca and cola together to determine which is the more prominent in the mixture?

A. No, sir. It would not be possible.

Q. Tell why.

A. They both react alike, and simply because you get a dark color signifies nothing at all.

Q. Have you tried both of them?

A. Yes, sir.

Q. What kind of color do you get from the tannins?

A. You get a greenish black color.

Q. Which is the darker of the two, if either?

A. There is no difference if the concentration is the same.

Q. State whether or not you have applied to the tannins of both coca and cola the reactive agent and the reaction processes as described by Drs. Mallet and Caspari.

A. I have.

Q. To what do you attribute the reddish brown color spoken of by Dr. Caspari as indicative of the reaction of cola,—which I believe he said he ascribed it to.

A. I attribute it to the fact that he did not have any tannin there.

Q. Why so?

A. Because he said he worked with a decoction of cola obtained by boiling with water or boiling it up with water, and by doing that in the first place you precipitate the tannin with your starch that is in the cola and it would go through the filter, if you could get any through, and in my opinion you could get no filterate. I have performed the simple reaction and got through one or two cc's in the course of an afternoon, working with 100 cc. of boiling water to 10 cc. of cola, and that filturate gave a reaction very similar to what Dr. Caspari describes, but it is in no way comparable with a decoc-

tion made in a cold way, from cold water, which give a distinct green black color on treatment with iron chloride.

Q. In which way would you get the greater proportion of tannin, by boiling or having the cold infusion?

A. You can only get it with the cold infusion?

Q. Now, if the same weights of material be taken—that is, of cola and coca, in the investigation of the tannin content—I will ask you to state whether or not the results as to concentration would be any index as to the amounts of coca or cola tannins that were present, and if not, state why.

A. They would be an indication, yes.

Q. In what way,—which would give the greater?

A. The cola tannins would give the greater.

Q. Probably how much greater?

A. I should say ten times.

Q. Have you tried mixing Merchandise No. 5 with Coca Cola syrup to see whether or not any flavor is imparted to the syrup by the mixing of the Merchandise No. 5?

A. No, sir, I have not; not with Coca Cola syrup.

Q. I didn't mean Coca Cola syrup but syrup independent of the Merchandise No. 5 and then adding the Merchandise No. 5 to the simple syrup?

A. Yes, sir, I have.

Q. State whether or not there is any taste imparted to the mixture after the Merchandise No. 5 is added.

A. There is not.

Q. Did you receive from Howard Candler a statement as to the contents of this package of syrup that he made up by leaving out the Merchandise No. 5 that he shipped to Dr. Mallet from his factory as per his agreement on the witness stand?

A. I did.

Q. Assuming that one gallon of the mixture in which Merchandise No. 5 was not added was made up and that the mixture of Coca Cola syrup proper which contained Merchandise No. 5 was taken from a 1250-gallon batch, would there as to the flavoring oils or odors be a difference even in batches of that size, independent of the Merchandise No. 5, and if you say so, then tell why there would be—

A. There would be.

Q. Why do you say so?

A. In the first place one of these mixtures was 1250 times greater than the other, and it is a very difficult matter to adjust flavoring agents and especially flavoring agents of the extreme potency of the oils that are used in this mixture in a small batch exactly to duplicate the

test that you would get in a large mass. It is one of the most difficult things in pharamceutical chemistry to do that. The error of adjustment is increased many times in a small mixture over a large mixture. It is a very difficult thing in even five-gallon batches made up from the same formula to get exactly the same flavor. People can very often tell that. I have had that same experience myself. It is due to the essential oils.

Q. I will ask you to state from a scientific standpoint and a practical one, as well, whether or not the methods of Dr. Mallet and Dr. Caspari were proper methods for determining the tannin in Merchandise No. 5 and in Coca Cola syrup, and if not, state why.

A. Do you mean in getting them out for testing?

Q. I mean whether or not the tests mentioned by them were true scientific methods for determining the flavor.

A. No, sir.

Q. Tell why, and in that respect speak of Dr. Sadtler as well, for determining the flavor.

A. You mean the flavor of Coca Cola syrup?

Q. Yes, as compared with Merchandise No. 5?

A. No, sir, I do not consider them scientific.

Q. Tell why.

A. I think I answered that in the previous question, the difficulty of making up two batches, one a very large one and one a very small one, with the same ingredients and adjusting those oils so that you would get the same flavor. The scientific way of doing that would be to make up a batch with all those ingredients, leaving out the Merchandise No. 5, say five or ten gallons of it, and then divide that into two parts and to one of those parts add the requisite quantity of Merchandise No. 5, and see then if you could tell any difference.

Q. You say you have experimented in that way?

A. Yes, sir.

Q. Now, assuming that there was a slight difference in the predominance of the tannins of coca and cola in the Coca Cola syrup, or in Merchandise No. 5, would that slight difference or not impart any distinctive odor or flavor to the product?

A. It would not.

Q. After the odor from the toluol which you noticed first on opening a container of this Merchandise No. 5, is there any other distinctive odor present, and if so, what is it?

A. There is an aroma of wine, I should call it. That is about as distinct as I can describe it.

Q. Is there or not an odor or aroma of California

wine—that is, does it give off an odor or aroma, or are you acquainted with it?

A. I am not familiar with the odor of one wine over another.

Q. Are you acquainted with the aroma from the white California wine?

A. Not specifically.

Q. Or white wine in general, I should say?

A. No, sir.

Q. Did you endeavor to ascertain whether or not there was any theobromine contained in Merchandise No. 5, and if so, what did you find?

Mr. Hirsch: The doctor went into that and he told about the melting point of the theobromine and caffeine on direct examination and he said the melting point was different and we put the question if there was simply a trace of theobromine, could it be detected.

Mr. Miller: Do you concede that he said there was none?

Mr. Hirsch: Yes.

Mr. Miller: Then I won't ask him. I recall that he stated about the difference in the melting point but not as to the quantity.

CROSS-EXAMINATION,
BY. MR. HIRSCH:

Q. When did you make all these experiments,—since you have been here?

A. No, sir; not all of them.

Q. About the tannin?

A. Yes, sir.

Q. Did you ever know anything about tannins before you came here?

A. A little.

Q. Not much?

A. No, sir.

Q. You found all of your methods by listening to the claimant's testimony?

A. Yes, sir.

Q. Did you know anything about the tannins before you came down here?

A. Not much.

Q. How much?

A. I have endeavored to detect them in various pharmaceutical products I have analyzed but never gone into the chemistry of them much.

Q. Did you ever treat coca leaves and cola nuts before you came here?

A. No, sir.
Q. Had no experience?
A. No, sir.
Q. Suppose you take fifteen or twenty leaves and make an infusion of them, and use fifteen or twenty reagents to make a test and then put them together, could not you by a process of elimination tell which one of the tannins were present?
A. I do not think so.
Q. You could not do it?
A. I don't think anybody could.
Q. Could you do it?
A. No, sir.
Q. That is because you have had no experience?
A. That is one of the reasons.
Q. You said charcoal could extract all of the caffeine. Did it?
A. It did.
Q. Why do you differ with Dr. Emery as to your caffeine contents?
A. I do not.
Q. Didn't Dr. Emery report that he found a greater percentage of caffeine than you did?
The Court: I think the question of comparison in that way is not proper.

BY MR. HIRSCH:

Q. If there were two per cent. of tannins from the coca leaves, would it not be possible to identify it?
A. No, sir.
Q. Didn't you say you could identify the tannin from the coca leaves?
A. I did not.
Q. What did you say about two per cent. of tannin in coca leaves?
A. I do not think I made that statement.
Q. I mean .2.
A. You mean how I can identify that?
Q. Yes.
A. You cannot identify it?
Q. Then you do not know how much per cent.?
A. You mean an approximate per cent.?
Q. Yes.
A. That is different.
Q. How did you approximate it?
A. I made up infusions of coca and cola and I adjusted them until they gave the same reaction, and it took ten times as much—
Q. What did you adjust them with?

A. I adjusted the solution.
Q. What reagent did you use?
A. Iron chloride—you mean, adjusting for that test?
Q. Yes.
A. That is all; iron chloride.
Q. Have you ever used the five reagents recited by Drs. Mallet and Caspari?
A. I didn't hear but three.
Q. Three was all you used?
A. They used three for differentiating. They used ferricynide and ammonia, which is a general reagent with tannins, no more indicative of one than of another.
Q. Did you use all five on one thing? Don't talk about any one in particular, but five; and if you used those five, by a process of elimination could not you tell whether that tannin was derived from the coca leaf?
A. They didn't use five.
Q. Did you try that?
A. No, sir.
Q. Is it customary to use animal charcoal to purify caffeine quantitatively?
A. Yes, sir.
Q. What authority?
A. I use it.
Q. You mean, the Department of Agriculture uses it?
A. Yes, sir.
Q. And that is your authority,—the Department of Agriculture?
A. And what I do myself.
Q. Is it not a fact that animal charcoal will take up part of the caffeine?
A. It does not from the solution of chloroform.
Q. You had a chart showing the percentage. Will you let me see that?—You state that the extracttive matter in Merchandise No. 5 due to the coca leaf and cola nut—you said the coca and the cola equaled two per cent.?
A. Yes, sir.
Q. You say that would not impart a flavor?
A. No, sir.
Q. Did you detect any difference in the flavor of California wine and Merchandise No. 5?
A. I said I was not familiar with the flavor of California wine alone.
Q. Did you find any difference between the flavor of California wine and of Merchandise No. 5?
A. No, sir.
Q. Do you mean if I would put California wine before you and Merchandise No. 5 before you, there would be

no difference in the odor?

A. I do not know.

Q. Then you do not know whether you would detect any difference?

A. I said I did not know, that I had not tried either.

Q. Would or would not two per cent impart a flavor to Coca Cola syrup?

A. It would not.

Q. Did you ever try it?

A. There is no flavor in that.

Q. No flavor at all?

A. No flavor in that two per cent.

Q. And no odor?

A. No, sir.

Q. How do you know there is no flavoring matter and no odor?

A. There is no flavor or odor of coca leaf in Merchandise No. 5.

Q. What is it that gives the vanilla extract its flavor?

A. Vanillin.

Q. Is that all?

A. All I can think of just now.

Q. What is the per cent. of vanillin in vanilla extract?

A. I do not know.

Q. Is it not one part in two thousand?

A. I do not know.

Q. What would be the proportion of vanillin in vanilla ice cream?

A. I do not know.

Q. Do you know whether it would be one part in 250,000?

A. I have not the slightest idea.

Q. You don't know anything about that? All you know is these experiments you performed down there?

A. That is all.

Q. I want to find out how you got this two per cent. exactly of coca leaves and cola nuts in Merchandise No. 5?

A. I took Merchandise No. 5 and determined the total extractive matter that was in there which was four per cent. Now, the average of a large number of analyses of white California wine gives two per cent.

Q. You don't know that,—you are taking somebody else's word?

A. I am taking the results of analyses made and published.

Q. What publication do you refer to?

A. I refer to something gotten out by our Bureau.

Q. Did you ever notice what Leach says about per-

centage?

A. I don't know. I think that is pretty close to it.

Q. Does he say two per cent.?

A. I couldn't say.

Q. Go on and tell me where you got that two per cent.

A. I simply subtracted two from four and that left two.

Q. That is assuming that the California wine used had two per cent. of extractive matter?

A. Yes, sir.

Q. And that is about the highest percentage you found?

A. I don't think so.

Q. Doesn't Leach give much less percentage?

A. I don't know.

Q. When did you first find out that toluol was used in the manufacture of No. 5?

A. When Dr. Schaefer told me.

Q. You didn't know before that?

A. No, sir.

Q. You state on the witness stand that Dr. Kebler did not tell you toluol was used in Merchandise No. 5?

A. No, sir; he told me he did not know whether it was used.

Q. He told you he did not know that?

A. Yes, sir.

Mr. Hirsch: That is all, then.

REDIRECT EXAMINATION,
BY MR. MILLER:

Q. Had your examination in chief been given and you testified formerly in this case before you heard Doctor Schaefer's statement that he used toluol?

A. What is that?

Q. You testified in chief in this case before Dr. Schaefer ever told you he used toluol in this mixture?

A. Yes, sir.

Q. Is tannin a flavoring agent?

A. No, sir; it is not.

Q. When you speak about having had no experience as to tannins or working with tannins I will ask you to state whether or not you mean actual experiments for determining tannin contents or whether you mean that you have had or have not had workings with leaves that had tannin in them. Tell what you mean when you made that statement to counsel.

A. I had reference, first, to the fact that I had never made any determination of them, and then that I had

never made any extensive experiments with their different reactions. Of course, I worked with leaves that had tannin in them.

Q. How many years?

A. Off and on for ten years, I guess.

Q. What two reagents, or what two agents, were there that Drs. Mallet and Caspari used that you say are common to all tannins as re-agents?

A. The iron chloride and the ferricyanide of potassium, and ammonia.

Q. What are two that are common? These three were applied to those distinctive tests, but what were the two that were common, or did I misunderstood you? Did you say there were three that were common and two uncommon?

A. I think I stated that the iron chloride and the gelatin and the cinchonine sulphate tests were common to both cola and coca, and I think I further stated that the ferricyanide of potassium and ammonia tests were given by tannins generally.

Q. Now, at the same time you sent that Coca Cola syrup to Dr. Boos who has testified, did you send any coffee or coffee extract, and if so, tell what.

Mr. Hirsch: The testimony is that Dr. Fuller did not send that; it was another gentleman.

Mr. Miller: I am asking him.

Mr. Sizer: I do not see that that is testimony in rebuttal.

Mr. Miller: It is in rebuttal to Dr. Schmiedeberg. I cannot ask Dr. Boos about it until I show what he got, and this is in rebuttal of Dr. Schmiedeberg on that point.

The Court: What point?

Mr. Miller: On the point of the coffee and tea being more harmful than Coca Cola.

The Court: What is the question about that?

Mr. Miller: Dr. Boos performed some experiment with coffee and Coca Cola syrup but his testimony was ruled out on the ground that he did not identify a certain coffee mixture or what we say was coffee, that was sent to him.

The Court: I don't recall any such thing as that.

Mr. Miller: I may be mistaken in saying it was ruled out, but before I ask him I want to show that the coffee was sent to him, and if this witness tested it I want him to show what it was and I want to ask Dr. Boos after I have laid that foundation, as to the relative toxicity of the two.

Mr. Sizer: That is matter in chief. Witness after wit-

ness testified on original examination as to the effects of coffee and tea and Coca Cola, and the effect of caffeine in each of them and Dr. Boos testified fully.

The Court: The Government did not go into the question of coffee and tea. You cross-examined on that.

Mr. Miller: And this is in rebuttal of Doctor Schmiedeberg.

The Court: I do not think it is a question as to it being more or less harmful or as to it being more or less harmless. If you want to rebut the fact that caffeine in coffee and tea is injurious, you may do so, but not as to the relative injury or benefit.

Mr. Miller: What I wanted to show was that Dr. Boos performed certain experiments and I want to show what he got.

The Court: You can show that.

BY MR. MILLER:

Q. State whether or not you sent any coffee or coffee extract or caused them to be sent to Dr. Boos and if so state what it was.

A. I made up an infusion of coffee for Dr. Boos, containing one grain of caffeine to the fluid ounce and sent it to him.

Q. About what time with respect to the time that the Coca Cola syrup was sent you—or I will ask you to state whether or not you sent it under your own seal?

A. Yes, sir.

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

Q. Assuming now that in the making up of Merchandise No. 5 that 380 pounds of coca leaves and 125 pounds of cola nuts, were used, to-wit 505 pounds, what percentage of the joint weight of the coca leaves and the cola nuts would be in Merchandise No. 5 according to the process used by Dr. Schaefer according to the figures you gave here this morning?

A. I can't figure that out in my head.

Q. Well, you can take a piece of paper and pencil and do it.

A. All right. But I think I have given that, have not. You say what per cent of these two would be in Merchandise No. 5?

Q. From the coca and cola.

A. I think I said two per cent, didn't I?

Q. Well?

A. I don't know whether I did or not. If I said two

per cent—I want to know what I did say.

The Court: It is not a question as to how much there was of the tannin or extractive matter, but how much of the original coca and cola in weight?

The Witness: Well, I understand.

The Court: The witness may make this calculation and later come back on the stand. Dr. Schaefer testified to that and it has not been disputed, and until there is some dispute about that, I don't see the force of the evidence. It would be a matter of accumulation—you can make your figures. If there is any error, it is obvious. You can make those calculations and report back on the stand. Is there any further examination of this witness.

Mr. Hirsch: No.

The Witness: All right, I will do so.

(Witness excused.)

DR. W. F. BOOS,

recalled by the government in rebuttal, testified as follows:

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. You may state whether or not you received a coffee preparation that was prepared by Doctor Fuller, and whether or not it was under his seal?

A. Yes, sir; I did.

Q. Did you perform any experiments with that and with Coca Cola syrup at the same time, and if so, what was the result of each?

A. I did. I gave the equilalent amount of Coca Cola syrup and of coffee to frogs to determine their relative toxicity, using of course, always the same amount of the two solutions of the same strength, so that I could use the same amount of each solution. I found by the two—

Mr. Sizer: I object to that—that is testimony in chief. It is testimony to show whether it contains anything of a deleterious character, and that has been gone over.

The Court: I will exclude the question of relative toxicity. You have already gone into the Coca Cola and that part of the proof is in chief, but you may show the experiments as to the toxicity of the coffee.

BY MR. MILLER:

Q. State what amount of coffee was given to a frog and how it was administered and what was the effect.

A. I administered coffee into the anterior lymph sac and it was necessary frogs from .16 to .17 of a milligram

per gram of weight of the frog in order to produce death. Mr. Sizer asked me to give —

Mr. Sizer: Hold on. You needn't state anything about that.

BY MR. MILLER:

Q. We will ask you to give it in figures.

A. I was just going to give it to the average frog.

Mr. Sizer: Well?

The Witness: The average frog weighs 30 grams that would make the toxic dose of the coffee extract, it makes the average toxic dose 1/11 of a grain for a frog.

Q. 1/11 of a grain?

A. 1/10 of a grain on an average.

Mr. Sizer: Your Honor excluded this evidence based on the introduction of cola or caffeine or anything else into the circulation.

The Court: Both sides went into that.

The Witness: It was not put into the circulation.

Mr. Sizer: We went into it for a while but as soon as it developed that the effect would be different —

The Court: The only thing I recall excluding was direct application of caffeine to the muscles, that is the only thing I excluded.

BY MR. MILLER:

Q. When the frogs received the coffee in this way, was it is not injected into the circulation, and if not, tell where it was received.

A. It was not injected into the circulation. It was given in the anterior lymph sac.

Q. And how did it reach the circulation?

A. By absorbtion through the tissues.

Q. Now then, Doctor, I ask you whether or not there is any difference in the appearance between morphine and caffeine?

A. There is none.

Q. I pass you three containers which I will ask you to make Exhibits 1, 2 and 3 to your deposition, and state whether or not they all bear the same visual appearance to you.

Mr. Sizer: The same question was asked him on yesterday.

Mr. Miller: I asked Doctor Kebler that.

The Court: I don't think Doctor Boos was asked this question.

Mr. Hirsch: I think the records will show that he was.

The Witness: I was asked the question but not shown the exhibits.

BY MR. MILLER:

Q. Examine these samples and state if you can tell whether there is any difference between the three.

Mr. Sizer: He testified there was no difference in the appearance of them. He testified that. You are just asking him again about that.

The Court: He has just simply produced these and asked if they are samples without asking that the matter be gone over again. Just let him state if he identifies them.

BY MR. MILLER:

Q. Are you able to identify either of these as caffeine, morphine or sulphate of quinine?

A. No, sir; I am not.

Mr. Miller: We would like to offer these three samples in evidence as Exhibits 1, 2 and 3 to this witness's deposition. I expect to show what they are.

The Court: You may show it.

Mr. Hirsch: I suppose this evidence is produced to rebut the evidence of Mr. Chandler.

Mr. Miller: Yes.

Mr. Hirsch: Doctor Chandler did not say anything about the coffee and morphine being ground up—he said you could tell them from the crystals — this is ground up and powdered.

The Witness: It is crystallized.

The Court: I don't recall, but before we go any further, get Dr. Chandler's evidence and look at it. Is this what is called the crystalline form?

The Witness: Yes.

The Court: Well, just wait and put the witness on the stand and testify what it is and get Dr. Chandler's evidence you want to rebut, and I will rule on it.

Mr. Miller: That is all we care to ask him. I understand this is like it comes from the original containers and I understand it has not been ground.

The Court: You may put the witness on who knows what they are, before you do that, I will ask for you to let me have the exact statements from Dr. Chandler's desposition. Is there any further examination of this witness?

Mr. Miller: No, none.

RECROSS-EXAMINATION,
BY MR. SIZER:

Q. Doctor, did you analyze this sample of coffee extract that you got from Dr. Fuller to see exactly what it had in it?

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A. I determined the caffeine contents only.
Q. Were there any empyreumatic oil in it?
A. I have no doubt it was in it.
Q. Did you find any?
A. I did not look for it.
Q. How did you determine the caffeine contents?
A. I used the standard method, I do not recall at this moment the method, it was given in Autenreith.
Q. You don't remember anything about the details of that?
A. No, sir.
Q. When was that?
A. Last October, I think.
Q. Could you say whether or not there were anything else in the extract besides the caffeine, you don't know, do you?
A. Well, undoubtedly from looking at the substance, it had the odor of coffee.
Q. Well, you don't know what else there was in it besides caffeine?
A. Well, it was coffee—it had that appearance, it probably had all the other constituents of coffee.
Q. Well, I didn't ask you anything about probably. Did you determine it or do anything else besides determine the caffeine?
A. I could tell to this extent, it had the odor of coffee and had the appearance of coffee—it was a dark infusion.
Q. Well, you have stated that; but you didn't undertake to determine what the other constituents besides caffeine were?
A. No, sir, I did not.
Q. Now you say you injected it into the lymph sac of the frog?
A. Yes, sir.
Q. Is it a fact that is a part of the circulation?
A. No, sir.
Q. Isn't it a fact that a substance injected into the lymph sac will have a more powerful effect and will be more readily observable than taken into the stomach?
A. Yes, sir; but it is not a part of the circulation.

RE-DIRECT EXAMINATION,

BY MR. MILLER:

Q. Would it have any different effect ultimately upon the brain or the heart or spinal cord?
A. None whatsoever.

RE-CROSS EXAMINATION,
BY MR. SIZER,

Q. Are you familiar with the German Work entitled "Frohner Toxicology Fur Thierartze" the first volume.

A. May I see the book? I can't tell without seeing it. I did not follow the spelling.

Q. Yes, you may look at it.

A. No, sir; I am not familiar with this book.

Q. Do you know whether it is a standard authority or work or not?

A. I could not say because I am not familiar with it. It is a book for veterinary surgeons.

(Witness excused.)

DR. H. C. FULLER,

recalled in rebuttal by the Government, testified as follows:

RE-CROSS EXAMINATION,
BY MR. HIRSCH:

The Witness: I will answer now by saying 29 per cent.

Q. Did you make that calculation or did Dr. Kebler make it?

A. I made it.

BY MR. MILLER:

Q. That is 29 per cent. of what?

A. 29 per cent. of coca leaf and cola nut that is used in making the mixture that Dr. Schaefer makes.

Q. That is Dr. Schaefer's preparation?

A. Yes, sir; in making Merchandise No. 5.

(Witness excused.)

DR. W. O. EMORY,

recalled in rebuttal by the Government, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Doctor Emory, I will get you to state whether or not you took any of the contents of the jug which was put in evidence as containing Merchandise No. 5, and made any experiments therewith, and if so, tell what experiments you conducted.

A. I endeavored to extract the tannin by using substantially the reaction described by the defense.

Q. And by that you mean by what Doctors?

A. Dr. Mallet, Dr. Caspari, and also, well —

Q. Also Doctor Sadtler?

A. I could not say about Dr. Sadtler.

Q. Well, applying these methods, what did you find?

A. I found these combined tannins gave with gelatin

no precipitate; but ferric chloride a dark green coloration; and cinchonine sulphate a flocculent white precipitate.

Q. Could you or not by applying the processes that were applied by Dr. Caspari or Mallet determine which, if either of the tannins, was predominent in the mixture?

A. It is an impossiblity.

Q. Is or not tannin a flavoring extract and ever used as such?

A. It is an astringent.

Q. Is it a flavoring agent.

A. It would impart some flavoring perhaps.

Q. It is an astringent—it is the astringent property imparted to Coca Cola syrup after it is mixed in the proportions that Mr. Howard Candler gave?

A. I never tasted Coca Cola syrup but once and then I only recognized a flavor which I considered peculiar to essential oils and lime juice, and also phosphoric acid.

Q. Can you state what characteristic odor or odors Merchandise No. 5 possesses?

A. I have had only occasion to examine two containers. When the cork was first removed, the odor of toluol—crude benzine, was predominent, and practically the only aromatic principle one could detect. Afterwards, that became dissipated and the pungent characteristic odor of the wine became very apparent.

Q. Could you state whether or not you were able to distinguish any of the odors characteristic of the coca or cola in this sample of Merchandise No. 5 or these samples?

A. No, sir.

Q. And did you hear the testimony of Dr. Wesener as to his method of determining the caffeine content of the syrup mixture of Coca Cola syrup sent to him?

A. Yes, I did.

Q. State whether or not in your opinion from a scientific standpoint, that was open to any criticism or was an improper method, and if not, why not.

A. I would say it would be an impossibility to obtain pure caffeine by the method described by him.

Q. And why not?

A. Assuming he gave all the details, it would be absolutely impossible.

Q. I am asking you to state why, in a general way?

A. Because the chloroform extract first obtained is not in any way a pure form of caffeine—accompanying the caffeine is always found coloring matters, aromatic principles, like essential oils, traces of phosphates, and a trace of sugar. The chloroform residue obtained is always a

crystalline magma colored yellow.

Q. Have you examined to ascertain whether there is any difference between the appearance of morphine and caffeine, either in the crystallized forms or otherwise after it is ground up?

A. Well, I have seen samples so treated that there is practically no difference in the physical appearance of such samples.

Q. You mean to the naked eye?

A. No, sir; there is not.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor, there is a difference in the appearance of crystals of caffeine and morphine before they are broken up, is there not?

A. That would depend largely upon the size of the crystals and the slowness with which they were allowed to form.

Q. There is a difference that can be detected between the crystals of caffeine and morphine?

A. You could not put that down as a rule. It would depend, as I say, on the size of them—if you could obtain large caffeine crystals which possibly could be recognized by an expert who had experimented with the substance a great number of times, but he could not swear it was caffeine.

Q. Well, if it was recognized as caffeine, he could swear it was caffeine?

A. I say it would be hazardous.

Q. You say there is a difference which experts can recognize, if he should see caffeine crystals?

A. Yes, sir; he would know it in his own mind.

Q. And if he recognized it in his own mind, he would be able to testify whether it was caffeine or morphine—

The Court: (Interrupting.) That is a matter of argument.

BY MR. SIZER:

Q. You say you performed some experiments in an endeavor to extract tannin from coca leaf and cola nut?

A. Yes, sir.

Q. Where were those performed?

A. Here in Chattanooga.

Q. Had you ever performed any similar experiments with coca leaves and cola nuts?

A. No, sir; not on these particular samples.

Q. On any coca leaves and cola nuts?

A. Not on these particular drugs, I should have said.

Q. Was that the only work you have ever done on coca leaves and cola nuts in endeavoring to get the tannins out of them, that has been here since this trial came on?

A. Yes, sir.

Q. Did you ever endeavor to get any other extracts out of the coca leaf and cola nut besides the tannin?

A. I tried to eliminate the cocaine which I did.

Q. Did you try to get any of the other extracts out besides the tannin or determine the amount of the other extractives?

A. No, sir; I isolated the tannin by the use of acetic ether, and the other combined extracts.

Q. But you did not undertake to determine the proportion of the other extractive matter?

A. No, I should say that would be an impossiblity to accurately do that.

Q. Well, a green persimmon has a very distinctive and perceptible flavor?

A. Yes, sir.

Q. And that is due to the tannin?

A. Yes, sir.

Q. You say you detected the flavor of phosphoric acid in Merchandise No. 5?

A. I detected the taste of it.

Q. What do you say about the phosphoric acid?

A. That was referrable to the Coca Cola —

Q. In Merchandise No. 5, what do you say about it?

A. I could taste it.

Q. Is there any distinguishing taste to phosphoric acid that you could recognize in Coca Cola syrup?

A. Not unless you know it. I happened to know it was present.

Q. You happened to know phosphoric acid was in it from the analyses?

A. Yes, sir.

Q. It has no flavor?

A. Except acidity taste.

Q. That might have been due to any kind of acid?

A. It was also due in part to citrate acid from the lime juice.

Q. The odor of Merchandise No. 5 is identical with the odor of California wine, isn't it?

A. That is the predominant odor.

Q. Do you mean to say, Doctor, there is any difference between the odor of Merchandise No. 5 or California wine?

A. There is certainly a difference.

Q. There is a difference?

A. Yes, sir.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Is there any known method for determining exactly the tannin content except the one as described by Mr. Chestnutt this morning on the stand?

A. I know of no method of accurately, in the present state of the art, to practically determine the tannins in any substance.

Q. In your opinion, was or not the process followed by him the proper one for the purpose of determining the percentages of tannin contents?

A. It is the only method he could have employed with our present knowledge.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Doctor, but even that method was not accurate, was it?

A. I said the method was open to criticism which is recognized by all chemists.

Q. Still you say it is true there is no known method for determining definitely the amount of tannin?

A. Accurately.

Q. Well, what I mean is accurately determining it, that is true?

A. Yes, sir; with absolute accuracy.

Q. Now, that method would not be accurate at all in the case of tannin that did not precipitate with gelatin?

A. It might and it might not.

Q. It might not be?

A. Yes, sir.

(Witness excused.)

THEODORE BASCHE,
the next witness called on behalf of the Government, of lawful age, first duly sworn, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. Mr. Basche, where do you reside?

A. Savannah, Georgia.

Q. Just take your seat there. I will get you to state whether or not about the time of the Coca Cola Company against Rucker was pending in the United States Court at Atlanta, you had occasion to obtain any samples of Coca Cola syrup which were analyzed by Doctor Cramp-

ton of Washington, of the Burea of Chemistry, and if you say you did, tell under what circumstances you received those samples and how you transmitted them, whether or not under seal.

Mr. Hirsch: We are perfectly willing to have him testify as to what he knows but whether Doctor Crampton analyzed them or not, that is another question.

The Court: He may state what he did with reference to the samples.

The Witness: I received an order from the Revenue Agent at that time, Mr. Gates —

The Court: You need not go into that.

The Witness: To get him some samples of Coca Cola and I went down to the Coca Cola place on Edgewood avenue and told a young man on the inside that I wanted to get a gallon—I got two large bottles about that size (indicating). He filled them up for me and I paid them for it and walked out with them and went to my office and I sealed them up and put them in a case.

Q. What kind of a seal did you put on them?

A. I disremember whether I used the wax seal with the Collector of Internal Revenue's name on it, or whether I used a paper seal and wrote over it with my name on it, so when it was broken they would know it, and I then marked these "Collector of Internal Revenue, Washington, D. C., Laboratory," and I took them to the express office and shipped them with the seals intact. Doctor Crampton told me the seals were intact.

Mr. Sizer: I object to that.

The Court: Yes, the objection is sustained.

BY MR. MILLER:

Q. I asked you whether you put your seals on it and whether they were intact when they left you?

A. Yes, sir.

Q. Did you or not deposit the same in the express office?

A. Yes, sir; I carried them to the express office.

Q. When was that with respect to the date of this suit of the Coca Cola Company against Rucker that was pending in the United States Court at Atlanta?

A. Between the time of the bringing of the suit and the first trial.

Q. I will get you to state if you know Dr. Crampton.

A. Sir?

Q. Do you know Doctor Crampton?

A. I met him in that trial. He came to our office there.

Q. I will get you to state if you have a publication

circulated by the Coca Cola Company entitled "Coca Cola News?"

A. I got it.

Q. I will get you to refer to page one of that publication containing directions to soda water dispensers and read the instructions that are given to dispensers. I will first pass it to adversary counsel that they may see it.

Mr. Hirsch: We object to this on the ground that it was published by Seth Cowl & Sons, 81 High street, Boston, Massachusetts.

Mr. Miller: I am not asking about who printed it but asked if it was circulated by the Coca Cola Company.

The Court: Does the witness know it was circulated by the Coca Cola Company?

Mr. Miller: I am asking him to say whether it was or not.

The Court: Do you know who circulated it?

The Witness: This was offered in the trial of The Coca Cola Company against H. A. Rucker and offered in evidence at that time and proven, admitted and proven —

The Court: That is not the question. The question is whether you know this is a publication circulated by the Coca Cola Company.

The Witness: No, sir; I do not know.

The Court: The objection is sustained.

Mr. Miller: We offer it in evidence, anyway.

The Court: That appears to be proof in chief, anyhow.

Mr. Sizer: I did not know what point they were offering it on.

Mr. Miller: The point is just this, that some of their witnesses brought out the fact that dispensers were given certain instructions. I did not think it was material but that evidence was admitted. We are trying to show they gave no such instructions and that here are the instructions contained on this pamphlet.

Mr. Sizer: This publication was issued in 1898, eleven years before the seizure in this case, and in Boston at that.

The Court: I have excluded it.

Mr. Miller: I have a similar publication which we will offer, dated January, 1901, containing a history of Coca Cola, and I will ask the witness whether or not this publication was circulated by the Coca Cola Company or by the defendant of Coca Cola where Coca Cola was sold throughout the South.

Mr. Sizer: Let me see it.

Mr. Miller: All right.

BY MR. MILLER:

Q. What do you know on that point?

A. All I know is that it was picked up as an advertisement.

Q. Picked up as an advertisement?

A. Yes, sir.

Mr. Miller: I submit that is a circumstance to go to the jury.

The Court: I don't know—let me see it.

Mr. Sizer: I don't think there is anything in it, it just encumbers this record and it seems that it is evidence in chief and then the witness has not shown that it was circulated by the Coca Cola Company. I have not had time to read it. I don't know that I have any serious objections to its going in.

Mr. Miller: If you don't, I would like to have it go in.

Mr. Sizer: I object to anything going into the record that does not belong there.

Mr. Miller: Then I understand you do object to it.

The Court: Gentlemen, the record is long enough without this colloquy. There is nothing whatever on this to show by whom it was circulated and if this witness does not know, I exclude it.

Mr. Miller: That is all for this witness.

Mr. Sizer: We do not care to cross-examine.

CROSS-EXAMINATION WAIVED.

Mr. Miller: We submit, now, your Honor, that we are entitled to read the testimony of Dr. Crampton on the statements that I was trying to draw out there so that we could show that these particular samples were sent to him for anaylses.

The Court: What did Dr. Crampton say especially about these samples he received—just read that.

Mr. Sizer: He said he got these samples from Atlanta. As I understand it, the Doctor testified in his examination as to the analyses he made of three samples, he did not distinguish between one and the other, and it was understood that if the Government connected it up, that all three of the samples would go in.

Mr. Miller: That is all I am asking for.

The Court: My recollection is that this connects it up. I therefore admit that portion of Dr. Crampton's testimony as to the other two samples.

(Witness excused.)

DR. L. F. KEBLER,
recalled to the stand for further examination, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Dr. Kebler, when you approached Dr. Hare with respect to his testifying for the Government, state whether or not he was retained by the Coca Cola Company?

A. Well, I did not approach Dr. Hare with view of getting him or retaining him for the Government. I was advised that Dr. Hare was retained —

Mr. Sizer: We object to that.

The Court: The objection is sustained.

BY MR. MILLER:

Q. What I wish for you to state, Doctor, is whether or not when you had your first conversation with Dr. Hare, he advised you that he was retained by the Coca Cola Company.

A. He did.

D. Did you testify on yesterday as to the difference between morphine and caffeine?

A. No, sir.

Q. I will ask you to state whether or not from your observation and experience you can distinguish between morphine and caffeine and sulphate of quinine in the crystallized form.

A. Not from the physical appearance, —no, sir.

Q. Speaking from your general observations and experience state whether or not the methods adopted by Mr. Chestnutt determining tannic acid or tannin content of coca was a practical and proper one.

A. It is. I have used the method to a considerable extent, not only with that but with other products as well.

Q. Have you or not had much or little experience in matters of that kind?

A. I have made considerable number of determinations of tannin material.

RE-CROSS EXAMINATION,
BY MR. SIZER:

Q. Is it or not recognized that there is no method known of determining accurately the quantity of tannin?

A. Well, it is a well-known fact that the tannin can be determined approximately, not with absolute accuracy.

Q. Will gelatin precipitate any kind of tannin?

A. Yes, sir.

Q. Well, sometimes it will not precipitate it, is that not true?

A. It is so recorded in literature but I have never found any.

Q. Do you know whether or not it will precipitate tannin in coca leaves?

A. I have not experimented on that point. Tannin is as a rule precipitated with gelatin unless it is very dilute, and in very dilute solutions gelatin does not precipitate some tannins.

Q. Will gelatin precipitate tannin from catigin?

A. I am not sure about that point.

Q. Doctor, do you know Dr. H. C. Wood who testified as a witness in this case?

A. Yes, sir.

Q. Well, didn't you approach him and try to employ him on the part of the Government?

Mr. Miller: I object to that.

The Court: The objection is sustained.

Mr. Sizer: He asked him about Dr. Hare.

The Court: You asked that question of Dr. Hare.

Mr. Miller: We desire to have the jury either taste or smell the contents of this keg of Coca Cola mixture which is present, the jug of Merchandise No. 5 and the the coca extract, and we submit that we are warranted from the ruling of the Court. While it is a matter in the discretion of the Court, I think the weight of authority is that we have that right where the test is as simple as that to resort to experiments, and we have all three of the mixtures present in court.

Mr. Sizer: That is the Coca Cola syrup, the Merchandise No. 5, —and what else?

Mr. Miller: And the coca extract.

Mr. Sizer: We have no objection.

The Court: Without objection that may be done.

Mr. Miller: We had better have two glasses; two other glasses, I should say.

Mr. Sizer: If they are going to hand the syrup around I suggest that it be diluted in the proper proportion, six or seven to one,—they might not want to drink it.

Mr. Hirsch: Dr. Fuller suggests that they ought not to drink it.

The Court: Don't anybody drink any of it; it is merely for smelling. The extract of coca contains some cocaine, which is not involved in this case.

Mr. Miller: I guess it is conceded cocaine is not a flavor.

The Court: I do not know. Have you passed the Coca

Cola syrup around?

The Marshal: We have to wait until we get a hatchet.

Mr. Miller: While that is being done I will offer certain correspondence between Drs. Caspari and Mallet with respect to this coca and to the detection of tannin which has not been presented. I would like to ask again if that correspondence can be furnished.

Mr. Sizer: I do not recall that anything of that kind has been called for. I do not recollect it.

The Court: I think it was called for and it was stated that it would be furnished.

Mr. Hirsch: I think the situation of that is that he called for it from Dr. Caspari and Dr. Caspari was uncertain as to how he got the method for determining the tannin and he finally said he thought it came through me.

The Court: Well, just look at the record and see just what it is.

Mr. Hirsch: Dr. Caspari states he has the typewritten slip I sent him.

The Court: I will not undertake to rule on that record until I get the record—if counsel wants me to rule as to the necessity for producing anything you must give me the place in the record where it was asked for.

Mr. Sizer: Here is a question that was asked Dr. Caspari, this is on page 1447: (Reading:)

"BY MR. MILLER:

"Did you receive any letter or letters in connection with the transmission?

"A. Yes, sir.

"Q. Have you any of those?

"A. I have not them with me. I have them at the hotel.

"Q. Would you produce them to counsel? I do not want to have them filed unless I find something in them that is relevant to the case.

"A. Yes, sir."

Doctor Caspari says they are still at the hotel; we will get them.

Mr. Miller: I wish the correspondence between him and Dr. Mallet. — (Addressing the Marshal:) Just draw an ounce of the Coca Cola syrup until I ask further questions and have it passed to the jury.

Now, a moment ago it was suggested by adverse counsel and we are quite willing that this be diluted according to the usual form of serving it and that I take it would not materially vary whether you use carbonated

water or not, or other water.

Mr. Hirsch: It would just be a difference in the taste.

Mr. Miller: I am willing to send some of it to the store and have it diluted by one of the chemists.

Mr. Sizer: Just pass it around and let them taste it.

The Court: This is the Coca Cola syrup?

Mr. Miller: Yes.

Mr. Hirsch: Just settle up the matter about Doctor Caspari. That letter Dr. Caspari promised to furnish to Mr. Miller; we have the testimony here on page 1453 and I will just read it to your Honor: (Reading:)

"Q. Where were your and Dr. Mallet's conferences held with respect to these analyses?

"A. They were carried on by correspondence.

"Q. Have you that correspondence?

"A. I have not.

"Did you not retain it?

"A. I have some of it but not all of it. As I remember it, the correspondence in connection with this tannin-like substance, in the first place —

"Q. I don't want you to state the contents.

"A. No, I am not. But I want to tell you how it came to be through correspondence and through what channels. I think Dr. Mallet sent Mr. Hirsch a memorandum of these tests and they were sent out by Mr. Hirsch to their chemists who were working on this problem.

"Q. And you got one of those?

"A. I got one of those memorandums.

"Q. And so that if you had never heard of Dr. Mallet's experimentation on Dr. Schaefer's you would not have known how to go about this?

"A. That does not follow at all. If I hadn't had the method that Dr. Mallet worked on I would probably have looked it up as he did and gotten the same one."

Mr. Sizer: Now, he is not asked to produce anything there.

The Court: Well, if you have any matter that you desire to refer to, just call it to my attention.

Mr. Miller: No—if he has that correspondence, I understand from counsel that they are willing to let us have it.

The Court: That does not call for anything.

Mr. Hirsch: We are willing to give it to them.

The Court: All right, then; give it all to them.

Mr. Miller: Doctor Caspari says he has nothing from

Dr. Mallet and I think that is true and may go into the record.

The Court: It is agreed that Dr. Caspari has stated to counsel in the presence of the court that he has no correspondence from Dr. Mallet and that is accepted as a statement from Dr. Caspari and goes into the record.

Mr. Sizer: We do not wish to leave the impression that Dr. Caspari did not get the memorandum from Mr. Hirsch that he testified to in his testimony here. He got an opinion from Dr. Mallet and got a memorandum from Mr. Hirsch.

The Court: He stated that.

(Witness excused.)

DR. L. F. KEBLER,
recalled as a witness in rebuttal, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. I will ask you whether or not, Doctor, cocaine has any odor or flavor?

A. Cocaine is absolutely odorless and flavorless.

(Witness excused.)

Mr. Miller: I think we have concluded, but I would like a few minutes' conference with General Cox, but I think that ends our case.

The Court: We will now take our recess of twenty minutes.

(Thereupon the Court, at 11:40 o'clock A. M., adjourned until 12 o'clock M. of same day.)

After Recess.

DR. H. C. FULLER,
recalled as a witness in rebuttal, testified as follows:

DIRECT EXAMINATION,
BY MR. MILLER:

Q. With respect to the 28 or 29 per cent. of extractive matter of the combined coca and cola, which I understand you to have stated on your recross-examination was found in Merchandise No. 5, I will ask you whether or not that statement was based on Dr. Schaefer's process of extraction?

A. Yes, sir.

Q. Carrying that per cent. forward into the 900 gallons of the mixture known as Merchandise No. 5 and then into the 1250 gallons of Coca Cola syrup, what would be the relative quantity of combined coca and cola extractive matter contained in the 1250 gallons of the mixture meas-

ured in pints and gallons?

A. It would be .0—

Q. I mean to talk not about percentages, but pints and gallons; in the 1250 gallons of mixture, what quantity of total extractive matter of coca and cola combined in that 1250 gallons?

A. There would be about two pounds in 1,000 gallons.

Q. How much does it take to weigh two pounds?

A. We count a pound to the pint. I guess that would be as near as you could get it for that small amount.

Q. Do you think a pint of that matter would weigh a pound or not—that extractive matter?

A. I am not sure; I could not say.

Q. Based on the percentage of 29 per cent. which you gave, approximately what would be the amount in pints in this 1250 gallons of the combined coca and cola extracts?

A. It would be about two pints—I mean to the thousand gallons, if that is what you mean; to that larger batch it would be a little more.

CROSS-EXAMINATION,
BY MR. SIZER:

Q. Did you know from the literature the proportion of vanilla nut contained in the vanilla extract?

A. No, sir.

Q. Is not there any work that gives you that?

A. I presume there is.

Q. Does not Leach give it to you:

A. I could not say offhand.

Q. I want you to look at this table and state the per cent. of vanillin in vanilla extract.

A. The percentage runs from point—

Mr. Miller: Is that a standard publication? If it is, he can state from it.

The Witness: Yes, Leach is a standard publication.

Mr. Miller: That is all right then.

The Witness: It runs from .065 to .215. Each of those is a per cent.

BY MR. SIZER:

Q. Assuming a teaspoonful of vanilla extract is used in making a gallon of ice cream—is not that about the amount of the flavor?

A. I don't know about that.

Mr. Miller: I object unless they show there is a similarity between this coca tannin and the vanilla extract as to flavoring matter and taste.

The Court: I overrule the objection.

BY MR. SIZER:

Q. You say you do not know about that?

A. No, sir, I do not.

Q. Assuming there is a teaspoonful of vanilla extract used in making a gallon of ice cream, what would be the amount of vanillin in a gallon of ice cream?

A. I could not say.

Q. Would not there be one part in 250,000?

A. I have not the slightest idea.

Q. Can't you figure it out?

A. No, sir; I cannot here.

Q. Could you come down here and figure it?

A. I will do my best. I cannot say that I can do it.

Q. Come on down and do it.

DR. W. O. EMERY,
recalled and examined, testified as follows:

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Have you made any experiment to ascertain whether or not animal charcoal is a standard preparation and customary one for separating organic matters or chemicals from coloring matter?

A. It is very frequently used in de-colorizing materials or compounds which we wish to purify.

Q. Is it or not a standard test for the one that was undertaken by Dr. Fuller and detailed by him?

A. I should think so.

RECROSS-EXAMINATION,
BY MR. SIZER:

Q. In using animal charcoal for purification, does it not take up some of the substances that you are trying to purify?

A. That depends on the nature of the charcoal and its fineness, and whatever is taken up can be accurately determined.

Q. It may do that?

A. It depends on the solvent.

Q. And the fact is you reached a different analysis in the analysis of Coca Cola syrup from the analysis that Dr. Fuller did?

A. It had slightly increased percentages but they were not due —

The Court: That fact has been proven and it is not necessary to go further into that.

Mr. Miller: We have this letter from Mr. Hirsch and

the memorandum of Dr. Mallet which has been furnished by Dr. Caspari and we desire to offer that as an exhibit with his deposition.

The Court: Let that be done.

(The papers referred to were marked "A" and "B" by the stenographer and are as follows:)

(On letterhead)

CANDLERS, THOMSON & HIRSCH
ATTORNEYS AND COUNSELLORS AT LAW
221-22-27-28-29 Candler Building
ATLANTA, GA.

March 9, 1910.

Dr. Chas. E. Caspari,
No. 2108 Locust St., St. Louis College of Pharmacy,
St. Louis, Mo.

Dear Dr. Caspari:

I beg to enclose you herewith copy of the memorandum prepared by Dr. Mallet in regard to the tannin-like material of Coca leaves, as requested.

Very truly yours,

HH.Encl. (Signed) HAROLD HIRSCH

(Ex. B.)

MEMORANDUM BY DR. J. W. MALLET IN REGARD TO TANNIN-LIKE MATERIAL OF COCA LEAVES.

Coca leaves treated with water yields an infusion which is precipitated freely by lead acetate; gives a dark brownish or olive-green color with ferric chlorid and a deep-red color with potassium ferrid cyanide, and ammonia reduces Fehling's solution, but (like Catechin), is only slightly if at all precipitated by gelatin solution or by cinchonin sulphate.

The Extract "No. 5" evaporated to syrupy consistence over water—bath (to expel alcohol), taken up again by a moderate quantity of water, shaken with acetic ether (freely used), the ethereal layer drawn off, this latter evaporated to dryness on water-bath, and the residue taken up again by water, gave a solution which, after filtration, responded to all of these tests in substantially the same way.

Coca Cola syrup shaken up with acetic ether, the ethereal layer drawn off, evaporated in like manner to dryness on water-bath, and the residue again taken up by water also, gave an aqueous solution which responded substantially to all of above tests."

Mr. Miller: That closes the case except Doctor Fuller.

The Court: When he finishes that calculation he can be placed on the stand. Has the Claimant any other witness?

Mr. Hirsch: One more witness and one question.

DR. LUDWIG HEKTOEN,
recalled as a witness herein, testified as follows:

RE-CROSS EXAMINATION
BY MR. HIRSCH:

Q. On your examination you made a statement that you made a microscopical examination of the guinea pigs received from Dr. Vaughan and the rabbits received from Dr. Wesener.

A. I did.

Q. Did you use the Nissl stain?

A. I did.

Mr. Miller: I object to that as being in chief.

Mr. Hirsch: On Saturday last we made the same kind of an objection when Mr. Miller was filling in with Dr. Formad and—

The Court: (Interrupting) I remember my ruling. Just state your objection. Has there been any objection or criticism made to Dr. Hektoen's method?

Mr. Hirsch: Yes.

The Court: Then you can prove it.

Mr. Sizer: Dr. Formad said in order to make a proper examination the Nissl stain should be resorted to.

BY MR. HIRSCH:

Q. Did you use the Nissl stain?

A. Yes, sir; in the examination of the nervous system of these animals the Nissl stain was used.

Q. Did Dr. Le Count to your knowledge use the Nissl stain in the examination of his animals received from Dr. Haines?

A. He did.

Q. On the examination of the rabbits received from Dr. Wesener, could you or not state whether the increase in weight was due to water?

A. It was not due to water—not due to any undue increase of water. The usual constituents of the tissues of those animals were present in the usual proportion.

RE-DIRECT EXAMINATION,
BY MR. MILLER:

Q. Did you analyze any tissues of the rabbits?

A. I examined them by the naked eye and microscop-

ically and there was no undue accumulation of water.

Q. Did you analyze them?

A. I did so far as the examination.

Q. That means you looked at them.

A. And handled them and under the microscope.

Q. And looking at them with the naked eye, looking at them through the microscope, you mean you can tell whether there is any increase of watery substance?

A. Yes, sir.

Mr. Hirsch: That closes, except as to the copy of one diagram on the board there.

The Court: That may be filed later; if it is lost, it can be reproduced later. I remember I suggested that as it had been referred to by witnesses so much that a copy of it should be made.

Mr. Miller: Mr. Candler undertook to prepare a duplicate of what it is on the blackboard.

The Court: Yes, it is substantially a reproduction of that rough diagram on the board and nothing else will be added to it or taken from it. There will be no difficulty in reproducing that. If nobody else can, I will get Mr. Walker to reproduce it. It may be filed at any time.

Mr. Sizer: I passed it to counsel so that they could see it was correct.

The Court: Now, has Dr. Fuller made that calculation yet?

Dr. Fuller: Yes.

The Court: Then you can take the stand.

Dr. Fuller: I made it one part in 3,908.

BY MR. SIZER:

Q. Did you take the average of the vanillin as shown?

A. Yes, sir. .131 per cent.

Q. You mean that is the proportion of vanilla extract or of vanillin?

A. As I figured it, the proportion of vanillin.

BY MR. MILLER:

Q. Is there any similiarity or dissimiliarity between vanillin and vanilla extract and coca tannin?

A. No, sir.

Q. Has tannin any flavor?

A. No, sir.

Q. Has vanillin?

A. Yes, sir.

Q. Is it relatively strong or not?

A. It is relatively strong.

Mr. Sizer: We would like to have that calculation of

Dr. Fuller's filed as an exhibit to his deposition.

Mr. Miller: I have been trying to get these charts filed all morning and I object to filing anything now.

The Court: There is difference between a chart on a blackboard and a calculation of a witness, but you may ask him, Mr. Sizer, to give in detail his method of computation.

BY MR. SIZER:

Q. Read off your calculation.

A. I figure that 1 gallon contains 128 ounces and that two ounces make a tablespoonful; that would be 256 tablespoonsful.

Q. Is that not wrong? Is it not true that two tablespoonsful make an ounce?

A. Was not that what I said?

Q. You said you figured two ounces to a tablespoonful.

A. I meant two tablespoonsful to an ounce. That would be 256 tablespoonsful. That would be half an ounce to a tablespoonful, and the average percentage of vanillin in your vanilla extract is .131. That per cent. on a half an ounce —

The Court: You mean 1.31 per cent.?

The Witness: No. .131 per cent. —Now, I think I have made an error right here which would give the .131 per cent. of half an ounce—that ought to be six ten-thousandths of an ounce.

The Court: The vanillin would constitute six ten-thousandths of the ice cream?

Mr. Sizer: Oh, no.

The Witness: It would be about one part in 290,000.

BY MR. MILLER:

Q. Referring to the table contained in Leach as to the tannin in white California wine, and just read what they are, in white wine only —

Mr. Hirsch: Let me see that book before he reads from it.

BY MR. MILLER:

Q. Just read the total extractive matter, I suppose you have no objection to that.

A. White wine. Rhine wine types.

Maximum	4.38	grams	in	100	cc.
Minimum	1.51	"	"	"	"

Sauterne types.

Maximum	6.78	grams	in	100	cc.
Minimum	1.69	"	"	"	"

Southern French type.

Maximum 4.56 grams in 100 cc.
Minimum 1.09 " " " "

Port type.

Maximum 17.22 grams in 100 cc.
Minimum 2.43 " " " "

Mr. Sizer: Port wine is not a white wine.

The Witness: It is given here under white wine. I am reading the table. These are California wines.

Mr. Sizer: Well, a port wine is a red wine.

The Witness: I thought so but I don't know.

Mr. Miller: We are asking only for white wines.

The Witness: These are given as white wines.

Mr. Sizer: He evidently got mixed then.

BY MR. MILLER:

Q. Give the others.

A. (Reading)

Sherry and Madeira type.

Maximum 19.66 grams in 100 cc.
Minimum 1.31 grams in 100 cc.

Q. That is all under the table headed "California Wines?"

A. Yes, sir.

BY MR. HIRSCH:

Q. Are ports and sherries purified with sugar?

A. I do not know.

Q. If they were, the sugar would be included in this list?

A. Yes, sir.

Mr. Sizer: That is all, your Honor.

Now, we want to renew our motion for preemtory instructions and on that we would like to present some arguments.

The Court: You can state the grounds. The argument of counsel will be taken down and show the grounds but it will not be part of the record.

Mr. Sizer: The grounds are these:

1.—In the first place, that under all the evidence the caffeine in Coca Cola is not an added ingredient and not being an added ingredient it is wholly immaterial whether it is a poisonous or deleterious ingredient or not.

2.—That taking all the evidence and giving it the strongest possible construction in favor of the Government, caffeine is not within the general meaning of the term a poisonous or deleterious ingredient within the purview of the Pure Food Law, such as would constitute an adulteration in this product, Coca Cola syrup.

So far as the question of mixing, coloring, and so forth,

is concerned, we submit that there is absolutely no evidence that would bring the product in this case within that particular provision of the Statute, it being shown, as we think clearly, that the different animal remains, the sawdust and so forth that were found in the syrup, got into it in the keg after the syrup was compounded, and therefore there is no connection between the coloring matter in the syrup and those impurities.

Now, so far as the misbranding is concerned we say there is no evidence that the name "Coca-Cola," as the compound hyphenated name, used by the Claimant was ever intended to indicate that this substance contained any particular ingredient from the coca leaf or the cola nut, that it is not shown that there was ever any representation made by this claimant that it did contain any particular ingredient from the one or the other. It is not shown that any one was misled by the name into believing that there was any particular ingredient from either the coca leaf or the cola nut.

In the second place, the evidence does show that there are certain ingredients from the coca leaf and cola nut present in the mixture in the way of flavoring extract.

Now, on the imitation and the use of distinctive names of some other substances, in the first place, there are no such substances under the Government's own testimony known as coca and cola by their distinctive names, that coca and cola are not distinctive names for the coca leaf and cola nut.

In the second place, the use of the compound hyphenated name including the elements of the distinctively other substances is not obnoxious to the law and that the two well-known distinctive names may be combined into a third name; and so far as the charge of imitation is concerned, we say as a matter of law under all the evidence this article is not an imitation of coca leaf and cola nut. There cannot be any imitation of two different things at the same time; and, further, we say that under all the evidence the name "Coca-Cola" is the distinctive name of this product which distinguishes it from other food products. It has been used as the distinctive name of this product for a period upwards of twenty years and has never been applied to anything but this substance, and, therefore, regardless of how it originated, it has come to have a particular meaning, namely, the particular product in this case, and, therefore, under the express language of the Act, the article is neither adulterated not misbranded if it is known under its own distinctive name. Those are the general grounds on which we base the mo-

tion.

The Court: Now I will hear arguments.

Mr. Sizer: Now, so far as the allegation with respect to the coca leaf and cola nut, we say that is a fanciful picture or illustration of the name and it does not constitute any misrepresentation but simply shows to the people who see the barrels and kegs a fanciful representation of the leaves of the coca tree and the nuts of the cola tree, just as we might illustrate anything else in a pictorial way.

The Court: I will hear argument on this question. Now, counsel will understand that in the course of the argument I may ask questions and I may indicate impressions but it is not understood that any of these are definite conclusions unless so stated. I have had that habit when counsel are considering matters, of interrupting and questioning to draw out particular points. Now, my expressions during this argument are not to be regarded by any one as fixed and binding.

Now, assuming that caffeine is an added ingredient, could I well say under the testimony that there was not some evidence to go to the jury as to its effect as being deleterious?

Mr. Sizer: A poisonous or deleterious substance is one which in its inherent direct action is injurious. In other words it is something, as said by Dr. Kebler in his definition—it is something that impairs the functions of the organs. Now, under all the testimony in this case, caffeine does not directly or primarily impair the functions of any organ but on the contrary it stimulates the functions and as Dr. Kebler himself says, is a thing than enhances or improves the functions of an organ is the opposite of a poison. It is only poisonous in the same sense that the witnesses say that anything on earth is poisonous, that it can be taken in the body and used to excess and be deleterious.

MR. R. H. WILLIAMS: (Of counsel for Claimant) I am glad your Honor will ask all sorts of questions. I hope you will. What we want to do on this motion is to get a construction of this law, the Pure Food and Drugs Act. It is yet open to various constructions and we want all the light we can have regarding it.

Before entering upon the argument outlined to me, I would like to ask General Cox to look over his testimony and find out from the Government's testimony when the words "Coca" and "Cola" came to be the distinctive names they say they are.

The reason I ask that question is I think that some-

body has been stealing in this law suit. As far as I recollect the testimony it appears that the names "Coca" and "Cola" had been in existence, from the Government's own testimony, for a period of more than twenty years, and what I say is that the record shows that if there are any substances known as "Coca" and "Cola," they have as far as the record shows come into existence as the result of the popular use of our name. Of course coca leaves and cola nuts were in existence prior to the time we adopted the name of "Coca-Cola," but somebody has taken our name apart, if it be a fact and has used the name of "Coca" as the name of one substance and the name "Cola" as the name of another. I simply sugest that as preliminary to our investigation. I do not think in my view of the law there is —

The Court: There is undoubedtly some evidence, without expressing an opinion as to its weight—there is some evidence that there is a substance known as coca and one known as cola, and that would be a question to go before the jury.

Mr. Williams: But my proposition is that there is some evidence on the part of the Government that there are substances known as coca and cola but the same proof that shows that fact that there are such substances known as coca and cola does not show when those names came into existence. There is positive proof as to when we began the use of our name of "Coca-Cola," and therefore if it be true that there are such substances, there is no evidence to show whether those names anticipated our name or whether they took our name and pulled it apart and applied one of the parts of our name to one substance and one to another. In other words, can they go back of twenty years? They have not proven it.

Now, we have wandered far afield in the course of this very interesting investigation from the real legal question, as it seems to me, in this law suit, the material question. It has been very interesting to all of us to hear these scientific experts express their opinions on the matters that have arisen, but the legal question is not, as I view it under this law, whether the caffeine in Coca Cola may or may not be injurious, or whether the name Coca Cola may or may not be misleading. The question is: Is this article adulterated or misbranded under the Food and Drugs Act?

Now, the Government admits, of course, as your Honor has heard stated and I think perhaps your Honor has stated it yourself—the Government admits that there are certain simple foods that are not within the purview of this law although they may contain poisonous or deleterious

ingredients. That is an admitted proposition.

But I submit that counsel on the other side seem to argue that there are, under the express terms of this Act, certain mixed foods that are also stated not to be within the purview of this law.

Now, what we say is that under the concluding portion of this Section—has your Honor a copy of the law before you?

The Court: No, but I have read it several times.

Now, under the concluding paragraph of Section 88—I say the concluding paragraph because the law seems to be very curiously and badly arranged, if I am permitted to criticize the numbering of the sections and the arrangement of the sections.

The Court: It is difficult to try to see what they are referring to.

Mr. Williams: Yes, but your Honor knows the section we refer to. After setting out in the preceding section in elaborate manner under seperate heads what shall constitute adulteration and what shall constitute misbranding under this law, then there comes a long and sweeping provision. The first time I read it, I am free to confess I did not realize that it was such a sweeping provision. The first time I read it I thought the proviso clause applied to the heading misbranding. It did not occur to me what the language of the proviso actually meant, but it is clear enough when you come to consider it carefully, that is, that it is a clause so far as articles of food is concerned, that sweeps away everything that has gone before with reference to the question of either adulteration or misbranding.

> "Provided that an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases."

Now, I say that we come within the express exception of those seven or eight lines of this law, and that it makes no difference what is said about added in Section 7, and it makes no difference as to what is said about adulteration in Section 7 or misbranding under section 8.

My legal proposition is this, if the article in question here, it being admitted under the Government proof, that the article, Coca-Cola, is a mixture—I say if we can show that it is an article known and sold under its own distinctive name, and which does not contain any added poisonous or deleterious ingredient, we are excepted from the provisions of this law, and all the other matter as to what is in the composition or whether it has one one-hundredth-

thousandth or ten one-hundred-thousandth of this, that or the other substance, has nothing to do with this law-suit. If we have an article that the law of the land recognizes as property, if we have an article that bears its own distinctive name and does not contain any added poisonous or deleterious ingredient, then we are not within the purview of that Act.

The Court: What is meant by the word "added" there?

Mr. Williams: Before we come to that, if your Honor does not care to hear me on the question of whether the distinctive name there has the same meaning as trade-mark in the common law, I will pass to discussion of the other question.

Now, the position I want to submit to your Honor is that is meant by distinctive name in this Food and Drugs Act is identically the same as common law trade-mark.

The Court: Have you any quarrel with the definition of the distinctive name given there?

Mr. Williams: No, sir. When I can agree with the Government, I do so cheerfully, but the distinctive name, as they give it there, makes it the same thing as the "trade-mark" under the common law.

The Court: I think you may so treat that.

Mr. Williams: Then the question becomes pertinent in the argument upon a motion of this kind, whether or not the proof made by the Government shows whether we can come within the common law trade-mark. In other words, have they denied or disputed—have they not only proven that we have a common law trade-mark and therefore a distinctive name under this Food and Drugs Act.

The Court: (Reading) "A distinctive name is a trade, arbitrary or fancy name which clearly distinguished a food product, mixture or compound from any other food product, mixture or compound."

The Court: You agree to that?

Mr. Williams: Yes, you are reading from the regulations?

The Court: Yes.

Mr. Williams: I agree to that, and I say it follows from that there has been established under the Government proof that we have a distinctive name or trade-mark in which we have a right of property.

The Court: I don't see the bearing of the trade-mark name. The Food and Drugs Act does not protect trade-marks, it protects distinctive names.

Mr. Williams: I understand that, and the very question I was making is that they are our distinctive name, and that may possibly be something broader than the trade-

mark name. It certainly cannot be anything narrower than the trade-mark name of cola, and under the Government's own definition. I agree with the definition given in the first section of the regulations, that that is a correct definition of a distinctive name. Now, if that is true, it is necessary to argue to your Honor, unless the matter is conceded, whether we have a distinctive name under the Government proof.

The Court: It is a question of what "Distinctive name" is under the statutes.

Mr. Williams: Yes, but because it is a question of what distinctive name is and because I want to point out to your Honor it means one and the same thing as trade-mark—as stated in the common law—that is what I am directing my argument to.

The Court: We will leave out the trade-mark name as bearing on the question. The question we have is as to whether it is a distinctive name, not as to whether it is a trade-mark name.

Mr. Williams: That is true, but if they are one and the same thing, it helps. The only point I had in using the trade-mark name instead of distinctive name, was that I wanted to call your Honor's attention to what the Courts have held constituting the trade-mark name, and whether the proof in this case has taken us out of a list of articles that are trade-marked or distinctive name. I want to use the word indiscriminately. That is the Government's definition under Regulation 20, or Regulation 8 or whatever it is.

The Court: You are familiar with the opinion of the Attorney-General in the whiskey case. That is apparently good-wording, and it is "A distinctive name is either one so arbitrary or fanciful as to clearly distinguish it from all other things, or one by which common use has come to mean a substance clearly distinguishable from everything else."

Mr. Williams: And that is exactly what I say has been the definition of a trade-mark from the beginning.

The Court: You need not go into the authorities on distinctive names.

Mr. Williams: Then there is one other suggestion with reference to the question of trade-mark name: following that to a logical conclusion and assuming for the present that that distinctive name of the Food and Drugs Act is the same thing as trade-mark under the common law, and that the definition of distinctive name is the definition of trade-mark—now assuming that the suggestion I make is this, that it appears from the Government proof that it is

a distinctive name, Coca-Cola, and that it has been registered under the law of Congress, the Trade-mark Law. It appears in the Government's own testimony that that name has been registered, and registered for a good many years. Now the proposition I desire to submit on that is this, that where the Government acted under one law, the Trade-mark Law, which antedated in point of time the Food and Drugs Act, the last trade-mark law having been passed in 1906, that the Trade-mark Law, as it now stands, the Government having admitted to registration under that law our name on the theory that it is a distinctive name, because that is the only theory on which it might be admitted, that it cannot now turn around under the Food and Drugs Act and proscribe us on the ground that it is not a distinctive name, and that we are doing wrong in using it.

The Court: You may have a trade-mark name that you could prevent any other people from using, and yet you might not acquire such a right to use that as to make it a distinctive name. It might have to grow up through time.

Mr. Williams: I appreciate your Honor's suggestion.

The Court: The trade-mark might be only a week old and have no distinctive name, so that the trade-mark really keeps people off of you until you can acquire the right to a distinctive name.

Mr. Williams: That is not quite true under the Trade-mark Law. The Trade-mark Law especially provides that when a name is of a distinctive character, it can be registered. It can only be registered on the theory that it is a distinctive name, and the Trade-mark Law provides that is prima facia evidence of the distinctive character of that name, and can only be overcome in case of a lawsuit against some one else by rebutting proof.

The Court: Will you read us the citation on that?

Mr. Williams: Yes, I have it right here. Section 10 of the Acts as amended in 1905, reads as follows: that the registration of a trade-mark under the provisions of this Act shall become evidence of ownership. In that respect this law differs from the English Trade Mark law—The English law, under the English Trade-mark Act, it makes it the absolute property of that individual until the name is taken off the roll in a direct proceeding, and nobody can make the defense that it is not a good trade name of a distinctive name at all, but it has to be some direct proceeding to remove that name from the roll, and after it has stayed there seven years, then the right becomes an absolute right, but during this period within the seven years of

the registration of the name, by direct proceeding, the name may, under proper circumstances, be removed, but in our case, we say under the common law we have by user a clear right to it. I do not want to mislead the Court. This law does not create any new property right. It simply—

The Court: (Interrupting) I understood you to say that the law provided that no name should be granted a trade-mark or registered as a trade-mark unless it was a name composing a characteristic of a distinctive name—and a trade-mark raises the presumption in law that it is a distinctive name—

Mr. Williams: I used that for this reason, in that I meant a distinctive name, not in the sense in which it may be used in the Food and Drugs Act but a distinctive name which is included under the definition of every trade-mark name under the common law. I say the very essentials of a trade-mark name, which grows out of first, the appropriation—first, the user, a man may use it a week or a man may use it a month or a year, as your Honor knows, or you may use it only a short time, and to that extent he is the first user and appropriator of it, and to that extent it is a property right. It is not necessary in order to secure that right that it should cover a long period of years, to create a property right, as your Honor well knows. It is the purpose of trade-marks to protect—it is as much a property right as your house and lot is a property right.

The Court: I do not think a trade-mark as such has any protection under this Food and Drugs Act unless it has become a distinctive name.

Mr. Williams: We agree with your Honor about that, but the point I am suggesting here was that it having been shown, the length of registration under the Act itself, under the trade-mark law, it having been shown to have been registered a great many years, that the Government having admitted it to registration and it further being shown that then the Government cannot now after having exercised or allowed us to do that, turn around under the Pure Food Law and reprimand us for the using of that name which in the first place, it being admitted on the theory that it was a distinctive name—

The Court: Suppose you had a trade-mark name that had been registered twenty years and never had sold a dollar's worth of goods under that name; would you be protected by this Food and Drugs Act?

Mr. Williams: Yes, you would.

The Court: If otherwise you did not violate it.

Mr. Williams: Yes, I think you would.

The Court: The very fact it did not protect it—provided it is not a distinctive name—if it is a distinctive name—

Mr. Williams: It can't be registered unless it is a distinctive name.

The Court. That is the point I wish an authority on. That is a point I want to get.

Mr. Williams: The first proposition in answer to that is that the whole idea of a trade-mark, regardless of the Trade-Mark Law—it is a common law—a piece of property, and that common law property is the one that is required because the name is a distinctive name, and the Government exercising its right under this Trade-Mark Law, has no attempt to register the name unless it has a distinctive name.

The Court: That is what I want authority on.

Mr. Williams: There is a provision in the Act—

The Court: There has been an amendment since then.

Mr. Williams: The trade-mark Act of 1905, Section 3—the registration of our trade-mark was immediately after the amendment of the Trade-Mark Law and this law was not in force at the time the first trade-mark was registered.

The Court: Well, what is it now?

Mr. Williams: I will get Mr. Hirsch to look that up for me. I thought I had another copy of the law here with that marked in it but I have not; but, may it please your Honor—

The Court: As I understand your proposition it is this—I have been thinking over it and it has suggested itself to me, if a compound or article does in the nature of that compound contain substances or certain materials which are essential to it and if it is given a name applicable to the whole compound and under that name as containing the essential elements it is sold and acquires a use and public consumption, a distinctive name in the minds of the public, then as I understand it your argument is that that ingredient which is essentially a part of it and has been during all that time is not an added ingredient.

Mr. Williams: Yes.

The Court: And therefore that the question of whether it is poisonous or deleterious is not material.

Mr. Williams: Yes.

The Court: That is your argument?

Mr. Williams: Yes.

The Court: Have you any authority on that proposition?

Mr. Williams: No, no authority that I know of directly on that proposition. There is no authority that I have found that really discusses this particular point.

The Court: I will hear from the other side on that pro-

position.

Mr. Williams: Then I will pass on.

The Court: Yes. If any of you gentlemen have any authorities, I would like to have my attention called to them.

Mr. Sizer: There are two authorities on that point that I will call to the attention of adverse counsel. One is the Macaroni Case, decided by—

The Court: I am familiar with that case.

Mr. Sizer: And the other is the case of Kenton v. The Commonwealth, 202 Penn., but that did not directly involve the question, but they do, as we think, sustain our position as to added ingredients within the meaning of the law. That was some foreign substance not naturally to be expected in the compound.

The Court: In the Macaroni Case, the question of using a foreign substance, wholly foreign to the product—

Mr. Sizer: Yes.

The Court: There are two or three cases, on the other hand, a Coca-Nola case, in which that definition has not been observed but they have never considered the question—in one or two cases—as to the poisonous and deleterious substances, but I cannot overlook the effect of the word "added." I will here state that I would like to get that 202 Penn. case. What page is that?

Mr. Williams: Yes, we will get it.

The Court: Did you say page 505?

Mr. Hirsch: I have it as page 25.

The Court: What does that case hold?

Mr. Sizer: Now, the Macaroni Case discusses what is an added ingredient and says that some substance wholly foreign to the compound in which it appears.

The Court: This distinction in that Macaroni Case—the word "Macaroni" has a definite meaning, it has almost a direct meaning such as the words, "apple, orange," etc., and it is easy to distinguish what is added to it.

Mr. Sizer: And we think "Coca-Cola" is.

Mr. Williams: There has been submitted to your Honor by counsel for the Government the debates in Congress that were had on that question.

Mr. Miller: And by you, too, also.

Mr. Williams: Yes.

The Court: But they do not discuss with any great particularity this question of compound. The question or the whole discussion impresses me with the idea that they were not thinking of that question.

Mr. Williams: Yes, that is exactly our proposition, and wherever the discussion arises it arises with reference to

that question of flavor or preservatives involved under the Seventh Section of the Act, dealing with simple foods—a distinction sought to be drawn between simple foods or mixtures and compounds on the theory that what Nature had put in would not be hurtful to any man, but that if it was put in in any other way it would be harmful.

The Court: There may be some instances but the general impression to my mind is that they were not thinking about the substance added to natural articles.

Mr. Williams: When you come to this particular question I am asking your Honor to consider—it is expressly limited, may it please your Honor, to mixtures or compounds—there is the crux of the whole matter in this law suit with reference to the question of the word "Added." It says: "Any article which is a mixture or compound." Now, to talk about adding to a mixture or compound—if you mean by adding you mean something that is put into the mixture or compound. Now, I submit as to the first statement that your Honor made with reference to the word "added" so far as this particular portion of the law is concerned, involves the very proposition that the article —that it means the same thing with the word "added" left out that it does with the word "added" left in. Now, that is the position that the Government must be driven to if they contend the word "added" means one of the constituents that goes to make up the mixture. If the law had meant to say that a trade-marked article—a distinctive named article described here, a distinctive name article shall not be taken out from under the law if it contains any poisonous or deleterious ingredients,—why not under the Act have said so—why should they have not used the word "added"—there has to be made some basis to start with, some standard for your Honor to determine in order to say as to whether it is a mixture or compound of Coca-Cola, made up of the ingredients that enter into it as shown by the chemists in the testimony; that is, Coca-Cola. The fact that caffeine is one of these ingredients does not make it an added ingredient in my proper interpretation of the word "added." If you say it does, the word "added" applies to all other ingredients.

It certainly will not be argued by the Government that because these ingredients are added—they are therefore driven to the proposition that the word "added" is utterly superfluous, and it therefore means the same thing with the word "added" in there as it would mean with the word "added" left out and we come then to the proposition whether under the law your Honor should hold that the Act itself meant the same, should be given the same interpreta-

tion without the word "added" as with it—assuming your Honor should hold that the word "added" meant only the constituent ingredients of Caffeine which is shown as one of the constituent ingredients of Coca-Cola—assuming we are wrong about that, the proper definition or interpretation of the word "added" used in this section of the Act, then we submit the question of law for your Honor to say under the proof in this case, as to whether a poisonous or deleterious ingredient—leaving out the word "added"—it is a question of law to say that the caffeine in this article is poisonous or a deleterious ingredient.

The Court: It seems to me in view of the conflicting proof of experts and other conflicts in the proof on that question, it would be pretty hard to say that was a question so far away—and without expressing any opinion whatever on just where the weight lies——

Mr. Williams: Of course, if your Honor rules—

The Court: I am not in doubt very much on that point, but I will hear you.

Mr. Williams: I will invite your Honor's attention to this fact—as to the words "poisonous" and "deleterious."

The Court: There would be more ground as to the word "poisonous" than "deleterious." The word "deleterious" is a different word from the word "poisonous."

Mr. Williams: In a very recent case decided by Judge Huff in New York and the only report I have of it is in one of the wholesale drug journals, I do not think it has been published in the Federal Reporter—holds that in a case prosecuted there by the Government where they sought to make a distinction between the words "false" and "misleading" as it occurs in the early part of this section, the Court held that these words—

The Court: Well, they are so very much alike—but the words "poisonous" and "deleterious" are not the same thing. As to the weight of the evidence, I do not give you any opinion, I do not intend to express any now.

Mr. Williams: I will ask your Honor to hear me on that point. I insist that it is a question of law under the peculiar circumstances of the case and because of the proof brought out on examination of the Government's own witnesses, I make this contention as a matter of law.

I can conceive, may it please the Court, that a great many cases would arise where the court would not as a matter of law say that these words "poisonous" or "deleterious" should be interpreted by the court, but under the peculiar proof brought out in the examination of the Government's own witnesses—and to the section of the law I desire to call your Honor's attention a little later.

I say then it becomes a matter for your Honor to determine as to the question—of whether or not caffeine as contained in Coca Cola is a deleterious or poisonous ingredient within the purview of this law.

The Court: There is such a contra-variety of opinion on the effect of caffeine on the brain and on the body, and whether there is any reaction or not or whether it is merely a stimulant of these things, that if the case reaches that point I shall be inclined to leave it to the jury to pass on these questions and instruct them that the words "poisonous" and "deleterious" which may cause injury are not to be used in the sense, perhaps, that they have been in some of these opinions.

A mere infinitesimal quantity of a given ingredient which may in large quantities be injurious, would not render it obnoxious to the Act; but the question is whether on the whole, taking into consideration the amount of the ingredient contained, the circumstances under which it is to be consumed, the character of the people who are to take it and the general circumstances surrounding it, and the tendency as to the accumulative effect—all those questions, and as to whether there is any reasonable ground of complaint on the taking of it as it is taken, there may be injury to the public or the greater portion of the public —that will be about the idea I have on it. I know there are some cases that say that some things might be termed poisons in inconceivable quantity—that would render it obnoxious to the Act—that does not seem a reasonable construction of the Act. The Food and Drug Law is to protect people from real danger and not from imaginary troubles.

Mr. Williams: May I venture the suggestion that the purpose of the law primarily is to avoid deception and incidentally to protect people against injury to health, but that grows out of the purpose to prevent or guard against deception—the first purpose is to avoid deception. For instance, an article can be sold with any poisonous substance in it; there is no limitation whatever—if you put on the label the proportion of the poisonous ingredients that it contains. I do not wish to burden your Honor with any useless suggestions, but I call your Honor's attention to this: Your Honor has stated what would be proper interpretation for the Court to put on the words "poisonous" and "deleterious"—now, it is conceded by the Government and it is universally conceded as far as I know, that the substances tea and coffee are not within the purview of this Act.

The Court: I do not see that that will cut any figure.

That is a natural product and the Statute can have no reference to that—coffee and tea may be or not injurious, that is an entirely different question.

Mr. Williams: If it is shown that caffeine acts the same way in all three substances and it is conceded that tea and coffee are not within the purview of the law, as a matter of law these words cannot mean—"poisonous" and "deleterious" cannot mean that caffeine contained in Coca Cola—because it contains caffeine, that is my proposition.

Now, another thing, under this Act the title of which is: "An Act for preventing the manufacture, sale or transportation of adulterated or misbranded or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes," and it goes on in the body of the Act and for nine times it undertakes to say what is and what is not misbranded or adulterated, and it does not use any term that covers "poisonous" or "deleterious" foods, drugs or medicines or liquors that are used in the caption until we come to the eleventh section of the Act, unless it should relate back, I do not know that it does—that may relate back to that question as to what is included under "poisonous" or "deleterious" or "injurious."

In the eleventh section of this Act there is a provision with reference to importation. I want to call your Honor's attention to the matter as to the force—the question of importations. I ask your Honor to look to section 11 of the Act which says: "The Secretary of the Treasury shall deliver to the Secretary of Agriculture upon his request from time to time samples of foods and drugs which are being imported into the United States or offered for import, giving notice thereof to the owner or consignee who may appear before the Secretary of Agriculture and have the right to introduce testimony, and if it appears on the examination of such samples that any article of food or drug offered to be imported into the United States is adulterated or misbranded within the meaning of this Act or is otherwise dangerous to the health of the people of the United States or is of a kind forbidden entry into or forbidden to be sold or restricted in sale in the country in which it is made or from which it is exported or is otherwise falsely labeled in any respect, the said article shall be refused admission."

The Court: I have no question but that this Act does not prohibit the sale in interstate commerce of things that are injurious to health, there is no question about that. I do not think the Government will contend that.

Mr. Williams: I was going to use this as an illustration—in that language—anything dangerous to the citizens of the United States. Suppose you say that coffee and Coca

Cola were of foreign manufacture and that they came into our country, both knocking at the door of the custom house and at one and the same time,—could your Honor admit tea and coffee and exclude Coca Cola?

The Court: If that came before me I would have to hear it on evidence as to whether tea and coffee were dangerous to health.

Mr. Williams: I understand, may it please your Honor. I base it on the proposition that tea and coffee were conceded not to be within the purview of this Act—and it has been conceded—

The Court: It is not conceded on the ground that they do not contain anything injurious to health but that on the ground that the ingredient caffeine is naturally a constituent of the natural articles tea and coffee.

Mr. Williams: I cannot see upon what logic the line could be drawn. Caffeine is the only question under consideration, in Coca Cola, as to whether or not it is poisonous. Then, that being so, it seems to me impossible to draw an arbitrary line as to the caffeine-containing substance, whether it is simple, mixed, or being imported the same as tea and coffee.

The Court: I do not know but what tea and coffee could be stopped at the borders under that Statute.

Mr. Williams: It says excluded. Reasoning from analogy you exclude one as a matter of law; if you do that, you would be bound to exclude the other.

The Court: Counsel for the Government did not attempt to argue from that point, they said it was not adulterated or misbranded.

Mr. Williams: I have this suggestion to make with reference to the word "poisonous"—with reference to the poisonous or deleterious ingredient—that the Act does set out, Section Eight, what constitutes the things that the Government considers to be poisonous or deleterious ingredients. Caffeine is not named in that list so that if caffeine is a poisonous and deleterious ingredient within the purview of the law, we will be placed in this strange situation—that if we should put the proportion of caffeine on our label we could not sell our goods without violating the law although if we had cocaine or opium or any of those poisonous drugs in it we could sell it. This seems to me a proposition that you cannot escape from.

The Court: I did not follow you.

Mr. Williams: It is just this: Caffeine is not set out in that list of poisonous drugs or deleterious substances under Section Eight. Now then, anybody can make up an article of food and place in that article any of these poi-

sonous substances under the express provisions of that Act. Yes, under the language of the Act, provided he puts on the label the proportion of the poisonous substances contained in the mixture. That is, other things being out of the way.

The existence in the mixture of these poisonous ingredients is not forbidden by the law. All you have to do in case of a proprietary medicine—

The Court: That would be as to the misbranding feature, but that would not prevent an article containing cocaine—protect it from being declared adulterated.

Mr. Williams: I am just speaking of the language of the Act—

The Court: It is not the misbranding but as to caffeine under the adulteration by—an article which is adulterated with cocaine would be nevertheless adulterated with cocaine, and that would be true whether it was stated on the label—

Mr. Williams: I am not speaking of adulteration—I am simply showing—suppose we had an article of food that did contain a certain proportion of opium, and if we put the proportion of opium on that label on that article of food, then there would be as far as this Act is concerned, nothing to prevent our selling that article of food.

Now, if in another article of food that was made up of the same ingredients but instead of cocaine there was caffeine put in it, we could not sell that article of food without being guilty of adulterating, although we did state it had caffeine in it on the label.

The Court: It is not dependent on the label but whether it is an added ingredient or not.

Mr. Williams: Yes, derivatives of these articles—no derivatives appear in the state of nature. To my mind caffeine is not a substance within the contemplation of this Act that can be characterized as poisonous or deleterious under the law.

The Court: I think that shows that caffeine is not regarded as one of those substances that is so dangerous to the public health that its presence should be guarded against; that is about as far as I think you can go.

Mr. Williams: If it was such a substance that you could not use it without being subjected to the penalties of the law, but if it contained other poisonous substances—

The Court: There have been numerous cases where articles have been held to be adulterated, with deleterious substances, that are not in the list of substances that are so dangerous that they have to be stated on the label. You take the Bleached Flour Cases—nitrates is not mentioned as a thing that has to be placed on the label yet it was held

to be adulterated. In the Macaroni Case the chrome yellow —it was deleterious but it did not have to be stated on the label.

Mr. Williams: In the Macaroni Case the chrome yellow was an admitted ingredient, and that other question did not arise. There is a section that I desire to call your Honor's attention to.

The Court: I will be very glad to get that.

Mr. Williams: I am referring to a section of the Trade-Mark law that I would be glad to call your Honor's attention to.

The Court: I would be very glad to have it.

Mr. Williams: That is, any mark by which the goods of the owner of the mark may be distinguished from other goods of the same class, shall be refused registration as a trade-mark on account of the nature of such mark unless such mark consists of or comprises scandalous matter, etc., and provided further that nothing herein shall prevent the registration of any mark used by the applicant or his predecessors or by those from whom the title to the mark is derived, etc., which shows an exclusive use of the trade-mark of the applicant or his predecessor from whom he derived title for ten years next preceding the passage of this act.

In the trade-mark registered in 1905 by the Claimant in this case it was registered and statements made to comply with the provisions of that Act that it had been in actual exclusive use and in possession of the owner for a period of ten years before it was transmitted for registration and before it was admitted to registration, and that being so and it having been admitted that the registration is under the other provisions of the law, I have the right, your Honor, to say that makes a prima facie case under the Trade-Mark Law, leaving out of question anything as to the common law statement or distinctive name. If you have made a prima facie case, not only does the Government not overturn the prima facie case under that trade-mark law, but the very proof that they introduce here shows in and of itself and that is a fact, that it was a name appropriated by the Coca Cola people and used by them for a long period of years.

That there was no other name in existence—Coca Cola—no other name of a substance known as Coca Cola—that was one matter that I desired to call your Honor's attention to—that provision of that law I wanted to call your Honor's attention to, as to the registration for ten years—that it had been in exclusive use of the owner for ten years —that makes a prima facie case of a trade name.

The Court: Unless there is some evidence that before the expiration of that ten years your company changed to some extent the constituents of that compound and you have to date distinctive name from that period.

Mr. Williams: If that is so we can go back to the common law definition, which is the same thing—I think in 1902 or 1904—I don't care what date it refers to, may it please your Honor, it has been shown that it has been used under that name for a number of years, it was shown by the Government proof.

The Court: Is that the only point that you intended to argue? I will be glad to hear the argument of the claimant in support of the motion and on any other matter.

Mr. Williams: I thought your Honor wanted to hear from me and then from the Government from that.

The Court: I desire to hear the whole argument on your side.

Mr. Hirsch: On the question of the construction of the word "added."

The Court: I do not care to hear further on that until I hear from the Government on that.

Mr. Hirsch: That was the only point that I cared to discuss, the "added" and distinctive name.

The Court: I will first hear what the Government has to say.

Mr. Sizer: I have got some authorities over at my office that I intended to use. I intended to let Mr. Hirsch and Mr. Williams open the case and then I expected to close it.

The Court: I would be glad to have the authorties.

Mr. Sizer: I have the authorities and I would like to say that I believe if your Honor would wait until morning and take an early adjournment—

The Court: I would like to get all this argument in today. I would like to get the views of counsel. It is not necessary to close it today, I am not desiring to do that, but I would like to hear you on it. You must have an entirely definite theory about your side of the case.

Mr. Sizer: Well, so far as the question of poisonous or deleterious ingredients are concerned —

The Court: I say, I would leave that question to the jury without any expression of an opinion under this evidence unless the question of added ingredients is in the case—that is the controlling question in my mind. If it were simply a question of the effect of caffeine, without expressing any opinion as to where the weight of the proof is. My opinion is such that I would let it go to the jury and as to whether the proof is sufficient or not I do not say, but I

would let it go to the jury.

Mr. Sizer: I understand that your Honor does not desire to hear from us any further at the present on the adulteration theory.

The Court: Unless you want to say anything on the question of it being colored so as to conceal it.

Don't misunderstand me—if you have any authorities on this question of added ingredients I will be glad to hear them.

Mr. Sizer: As to poisonous and deleterious ingredients —that feature of the matter?

The Court: My mind is made up on that point.

Mr. Sizer: And so far as that feature is concerned, it must go to the jury.

The Court: Yes.

Mr. Sizer: Then so far as the added ingredient feature of it is concerned, one additional authority I wanted to refer to was some proceedings that took place in the Houses of Congress during the consideration of this Bill and some of the testimony that was introduced—some statements that were made—especially a great many statements that were made by Doctor Wiley who directly had charge of the Bill on behalf of the Government in the hearings before the committees.

The Court: Yes—

Mr. Sizer: That is the reason I sent over for the paper.

The Court: If want Mr. Hirsch or Mr. Williams to bring out any of those points, I will hear them and you can close.

Mr. Hirsch: I only wanted to take up the Act as to the meaning of the word "added." I did not want to refer to any authorities, but I wanted to refer to different places where the word "added" is used.

Mr. Sizer: I will state our views:

Section 7 of the Act provides that any article shall be deemed to be adulterated if it be mixed, colored, powdered, coated or stained in a manner whereby damage of inferiority is concealed. We say that implies some sore of causal action in the mixing and coloring and concealment.

The Court: You mean intentional concealment.

Mr. Sizer: Yes, intentional concealment. It cannot mean anything else. Suppose a man makes a lot of Molasses and after it has been manufactured and is sitting on the table, a fly drops into it. You would not prosecute the man for coloring the molasses whereby the fly would be concealed, although it might be that because the molasses is so colored that that might cover such an impurity. This means to cover a case where the article was originally

good, for instance, vegetables and things of that sort, or meat that is decayed and has become inferior, because of time or because of some circumstance that has impaired its original value, and then the owner or vendor or manufacturer resorts to coloring or painting or staining to conceal the fact that it is damaged and is an inferior article. I submit it can not be said that the mere fact that after the syrup is made and it is poured into a keg in which there happens to be a fly's leg or a bee's wing or a little sawdust, that that permits the Government to come in and confiscate the syrup because we colored it, and by that coloring these inferiorities that crept in afterwards are concealed. I think this clause shows the distinction, the 6th sub-section provides if it consists in whole or in part of a filthy decomposed of putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal or one that has died otherwise than slaughtered.

Now, if it is consented that this product is adulterated because a fly's leg or bee's wing or sawdust or matters of that kind got in it after it was manufactured, then it would be under that 6th sub-section.

The Court: And that only applied to one keg.

Mr. Sizer: Yes, there is no particular proof that anything else in the nature of any fly's legs or anything else, was in any other of the kegs. On the contrary, the only evidence bearing on the manufacture of the product in general is the testimony of that Atlanta man who strained seventeen thousand gallons and never found anything but saw dust, and so far as the sawdust, the evidence is that the Government officials bored a hole through the sides of the keg and naturally that would carry some saw dust in. But from a legal standpoint, it is perfectly manifest that the clause on which this information is based has no application to a case of this kind where the impurities that are found in the product came into it manifestly after the product, was manufactured, and where there is no intentional coloring with the purpose of concealing the damage or inferiority.

The Court: If the process of manufacture contained elements of inferiority and at the same time the coloring matter was put in to conceal that inferiority, you mean.

Now, it occurs to me that one question for the Government is whether the coloring matter in any way concealed the sawdust. It might render it a little more difficult to see, but it is a question for the Government as to whether anybody could not see the sawdust who looked. So far as the bacteria in the infusion, I don't see how the caramel

could conceal the bacteria.

Mr. Sizer: There is no effort to prove any germs in this syrup at all. I think it is perfectly manifest what this sub-section is aimed at. Your Honor knows that dealers will get food products, meat, vegetables, and things of that kind, and after they have been kept they begin to look withered and have a bad appearance, an obnoxious appearance, and people won't buy them. Now there are substances that can be spread over vegetables and meat to make them look fresh. For instance, I was reading about a substance put on hamburger steak.

Gen. Cox: That is not in evidence.

Mr. Sizer: I am not talking about the evidence but about the law. Hamburger steak after it has been ground up and stood a while, don't look nice, and they take some kind of a sulphate and sprinkel it over it, and it has a beautiful fresh red color whereby the fact that the hamburger is damaged and inferior is concealed, and that is clearly within this section; but a case like this where some kind of impurity comes into the product after it is manufactured, and no casual action shown and no intent to put the coloring matter in to conceal the inferiority, but on the contrary it is shown it is a mere incident that nobody thought or knew of at the time the product was manufactured—I submit it is not within the purview of this sub-section at all.

The Court: Has that section even been construed?

Mr. Sizer: I have never found any case where it has been construed. I don't know whether the counsel for the Government has or not.

Mr. Hirsch says it has come up a time or two and in every case it has been some case like the one I suggest.

The Court: The question of purpose to conceal has not come up.

Mr. Sizer: I don't think it has.

Now, I understood your Honor said I might call the Court's attention to some other literature bearing on this question of the added ingredient.

The Court: Before you argue upon the debate, I have a reference from my book of an authority to the effect that in construing the statute, the Court will be aided by reference to the reports of the committee reporting the bill and the remarks of the chairman of the Bill, but not by the record or debates of the legislative body. The reference is 166 United States, 318. You had better look at that.

Mr. Sizer: In the brief I have, I have a citation to a number of cases to that point.

The Court: Has there been any case that goes to the extent of allowing the miscellaneous debate of individual members of Congress. That would be a very uncertain method.

Mr. Sizer: Most of the references I have to make are statements made by the Chairman of the Committee, Mr. Mann, who had charge of this Bill in the House—statements in the course of the debate explaining the scope of the different provisions and the purpose for which they were inserted, and matters of that kind.

The Court: The Government relies on the statements made by the Chairman of the Senate Committee, and you rely on the statements of the House Committee?

Mr. Sizer: Yes, and I think you will see by reading the debates that Mr. Mann had a more extensive knowledge and had made a more careful investigation than perhaps any other member of Congress, and it was a House Bill under the charge of Mr. Mann, which was finally passed by the Senate. The Senate Bill was not passed.

Now let me come to some of the references.

The Court: Are they references not contained in this extract that has been handed to me?

Mr. Sizer: Is your Honor ready to look at the Congressional Records now?

The Court: No, I just asked you whether you wished to call my attention to anything not included in this extract which you handed me.

Mr. Sizer: Yes, sir. In the first place, if your Honor does look through it, it is shown throughout the hearing before the Committee and in the testimony of witnesses most especially in the talks that Dr. Wiley made before that Committee, that this Bill was never intended in any sense to be a sumptuary or prohibition law. It is repeated time and time again that it is not the purpose of this Act to interfere with the right of a man to eat anything on earth he chooses to eat. Dr. Wiley says—

Mr. Miller: I don't think counsel has a right to make that statement in the presence of the jury.

Mr. Sizer: I was not repeating with reference to the jury. I just say that that appears not only before the Committee but in the debates in the House, and I just called attention to it.

The Court: Now, unless there is some authority to the contrary, I shall rule that I will limit my investigation to the reports of Committees, the statements made by the Chairman of the two Committees with reference to the purposes of the Bill. I think that is a reasonable limitation and you can govern yourselves by that.

Mr. Sizer: I will call attention in the first place, to the statement by Mr. Mann. He is making a long explanation of some provision that some member inquired about. This is on page 9178 of the Congressional Record, June 21, 1906.

"Another provision which has given rise to considerable controversy, at least out of the House, is the one which affects whisky. We found that there were two antagonistic interests involved in the whisky question. One was those who wished all whisky sold, as far as possible, to be the whisky as it came from the still after being aged; the other was the interest which wished to drive out of business, practically, the pot distilleries, and would require the whisky in the market to be made by so-called 'rectification,' or other processes, out of ethyl alcohol, pure alcohol with the addition of coloring or flavoring matter. The committee did not take a decided stand in favor of either of those interests against the other, but leaves each to stand upon its own foundation, upon its own merits, but requiring that the so-called 'rectified' whiskies shall bear upon their label the statement that they are imitation, compounded, or blended, so that the purchaser may know when he buys that class of goods that he is not obtaining whisky as it came from the pot still, simply by aging in barrels or otherwise."

I think originally there was some provision about whisky, and then he goes on to talk about the questions that were brought to bear.

"We were asked on the one side to adopt an amendment which would have put out of business the straight-whisky manufacturers; and we were asked on the other side to adopt an amendment which would have put out of business those who mix or blend the whisky. We did not recommend and have not recommended a proposition upon that point as either side requested, thinking it was not the duty of the committee to recommend to Congress legislation which would determine what people should either eat or drink, but rather to recommend legislation which would permit people to know what they are eating or drinking."

Again, a little further on referring to some communication they had from people outside with reference to the matter, he says:

"Doubtless the gentlman who sent the telegram is in some way interested in the sale of the articles. We have had a number of suggestions of that kind made, coming generally, though not always, from people who wish to sell the articles, and who, if they believed it would in-

crease the sale of the articles, would be the first ones who would want the advertisement on the label."

That was with respect to requiring an advertisement on the label as to the proportion of cocaine or any other poisonous substances. That is the way it was originally drawn.

Mr. Mann says:

"We cannot undertake to prevent the man who is an opium fiend from obtaining opium, but we can undertake to prevent the man who never wishes to take opium from taking it without knowing that he is taking it."

And in the debate the following day at page 9271, this occurs:

"Mr. Chairman, what will be the effect of this bill, and what is its purpose? I believe that it will promote honesty in trade, which is certainly desirable and cultivate the habit of telling the truth, which, I take it, is equally desirable. It will not deny men the privilege of getting drink on bitters, if they choose to do so; but it does say that they shall not be deceived into intoxication in the belief that they are taking harmless medicines. It will not take away from the cocaine or opium victim the privilege of his poison, but it does say that a man not addicted to these drugs shall not be seduced into the habit unknowingly. It does not even deny those who have a taste for such things the right to buy adulterated foods and drinks, but it does say that those who prefer honest food and drink shall not be swindled with adulterants nor poisoned without knowing it by an article of interstate commerce.

And so throughout the debate, both in the House and before the committee, the proposition is pressed time and time again that this is not intended as a sumptuary law, and is not intended to prevent man from eating or drinking anything he pleases, but is one to insure that he gets what he wants and does not get what he does not want.

And now, along that line, following out that purpose, Congress comes along and enacts this provision with respect to adulteration that an article shall be adulterated if it contains a poison or a deleterious ingredient, or if it contains an added poison or leleterious ingredient.

Now, what does that mean? It means something that a man would not naturally expect to find in that article, something foreign to it. If a man goes and buys a compound, well-known, and that he himself has taken, or he knows what he wants and is getting, if he does not get anything in that compound except what is a natural and essential constituents of the compound, there is nothing added, and he is not being deceived. If a man accus-

tomed to drinking Coca-Cola goes and buys a glass of Coca-Cola, the fact that there is caffeine in it does not deceive him. He may not know whether caffeine is in it or not, but he knows that he likes that particular drink, with the particular ingredients in it, and he is not deceived unless there is something put into it that he would not expect to find in there or would not be in there if the article were made according to its proper formula.

Now, the result of the contention of the Government that every element in that compound is an added ingredient —

The Court: You need not go further on that just now.

Mr. Sizer: I will not call that up further, your Honor indicating that you do not care to hear further about that.

The Court: I will hear from the Government on the question of imitation. You can come to the question of whether there is anything misleading in the name. I would like to hear from you on that.

Mr. Sizer: The point is that this name Coca-Cola originated about the year 1887. A man by the name of Pemberton in the city of Atlanta invented a syrup which he called Coca Cola Syrup & Extract and got a trade name for it. So far as the proof shows the name Coca and Cola were little known in this country at that time except possibly, and that even is not shown but we may say that the name cola was known among scientists as being the name of a tree that grew in Africa, perhaps in the West Indies, and some other tropical countries. The word coca was known among scientists, and scientists only, as designating a shrub that grew in South America. Those two names were taken, both the names of a foreign substance, and none of the ordinary people who drink soda fountain drinks, knew anything about, and were combined into the compound hyphenated Coca-Cola. Suppose there had not been a single drop of anything derived from the coca leaf or cola nut in that compound. I submit that this defendant would have had a perfect right to adopt that as the distinctive name of this product, and they would have had a right to have had the name trade-marked as they did.

The Court: Do you carry your argument to this point; that a man would have the right to adopt or would be protected under the Food and Drugs Act in a distinctive name, although the distinctive name contained or employed a false statement?

Mr. Sizer: Exactly.

The Court: Suppose in other words, a man had been selling Brown's Extract of Coca and it was not extract

of coca at all, but he had been selling it for forty years and everybody had bought that as Brown's Extract of Coca.

Mr. Sizer: I think he would under the Phosphate Case, the Calcium Acid Phosphate Case, but that is stronger than this case.

The Court: I don't say that they are parallel, but I was just getting your idea.

Mr. Sizer: The calcium acid phosphate case was this kind of a case.

The Court: Where is that reported?

Mr. Sizer: I don't know, but it is food and drug No. 579. I don't remember by whom it was decided and this does not show.

The Government filed a libel against 100 barrels of a product labelled "The Provident Chemical Company of St. Louis, Missouri," 300 pounds CAP Guaranteed under the Food and Drugs Act. They alleged in the libel the substance referred to under was barrelled and shipped under the representation by the consignor, and the same at all times has been so branded by said consignor as falsely to appear as pure calcium acid phosphate without any adulteration, therefore that the said branding of the said substance aforesaid was is and is wholly false; that the said substance has at all times been and is adulterated with approximately 50 per cent corn starch; that said adulteration has been mixed and packed with the said calcium acid phosphate so as to produce and lower and injuriously affect the quality and strength thereof; that said corn starch is of far less value than the said calcium acid phosphate; that the mixing of the same with the said calcium acid phosphate does greatly damage the same and does conceal the inferiority of the entire substance made by the said mixture.

The claimant denied that the said substance referred to as 100 barrels of the calcium acid phosphate, is or is represented to be, or ever was represented to be or is known or ever was known as calcium acid phosphate; denies that said substance is or is used or was or was used as a drug or food, or in the preparation of food within the meaning of the Food and Drugs Act of Congress, approved June 30, 1906, denies that each of the said barrels which contain said substance is branded other than Provident Chemical Works, St. Louis, 300 pounds CAP guaranteed under the Food and Drug Act; denies that the said substance was ever represented as the pure calcium acid phosphate, or is pure calcium acid phosphate without any adulteration; denies that the said sub-

stance is or ever was either barreled or branded to appear as pure calcium acid phosphate without adulteration or to appear as pure calcium acid phosphate; and denies that the branding of said substance as C. A. P. is wholly or at all false.

The Court: What did the Court hold?

Mr. Sizer: The contention was that this was branded calcium acid phosphate when it contained 50 per cent of corn starch and was not calcium acid phosphate at all, and the Court found it to have 33-1/3 per cent of starch, which however, the Court held was not a deleterious ingredient. Now, the Court says: It is provided in subdivision 4, Section 8 of the Act of June 4, 1906 (34 Stat. 768) under which this action is prosecuted, that "an article of food which does not contain any added poisonous or deleterious ingredient, shall not be deemed to be adulterated or misbranded in the following cases: 1st, in the case of mixtures of compounds which may be now or from time to time hereafter known as articles of food under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article is manufacturer or produced.

2nd. It really appears from the evidence that the substance referred to in the libel and sought to be condemned in this action is compounded of calcium acid phosphate and corn starch, the mixture containing about 33-1/3 per cent of corn starch.

It also appears that the addition of corn starch does not render the mixture deleterious or in any way dangerous to the health of persons eating food in the proportions in which that compound is used.

It further appears that the said compound when first manufactured was known as Cream Acid Phosphate; that said name was thereafter condensed to the use of the arbitrary letters C. A. P. and applied particularly to the substance or product referred to in the libel for the purpose of distinguishing it from other products; that the claimant herein adopted said letters, C. A. P. as its trademark. In other words the substance referred to is manufactured and sold under the distinctive name of C. A. P.

It follows from the foregoing that the plaintiff is not entitled to recover in this proceeding; that while the article sold under the trade name of C A. P. may be classed as an article of food, it does not contain any poisonous or deleterious ingredients within the meaning of the statute above quoted, and the libel must therefore be dis-

missed.

The Court: They thought it was not adulterated but under the misbranding section, do you mean to say if there was a false statement in the name that it would be protected by reason of the fact that it was a distinctive name?

Mr. Sizer: It was charged that it was misbranded.

The Court: But the Court did not find that it was misbranded or that it had any false statement in it.

Mr. Sizer: It had this false statement, that the name was Cream Acid Phosphate and it had 33-1/3 per cent of corn starch, and therefore there was a misrepresentation in the name.

The Court: The Court was not passing on that name. The question the Court was passing on was whether it was adulterated by something else.

Mr. Sizer: The libel and the answer involved that very issue. They alleged it was misbranded.

The Court: I am only referring to what the Court passed on.

Mr. Sizer: I take it the Court decided the whole question. That was a clean cut issue as to whether the name Cream Acid Phosphate was a misbranding, when it contained 33-1/3 per cent of corn starch.

The Court: Do you mean that if an article has a distinctive name, that it would be protected under the Food and Drugs Act from the charge of misbranding, even if it had a false statement in it?

Mr. Sizer: I do, with the utmost confidence.

The Court: Give me any authority on that proposition you have.

Mr. Sizer: Now, suppose we started out with a name twenty years ago, with an article that misrepresented its ingredients. Suppose that particular name has been used so long and so exclusively in the manufacture of that particular product that it has come to be recognized as designating that particular product and no other, that that is its distinctive name.

The Court: Suppose something has been sold as apple cider and it could be shown that it didn't have any apple cider in it, it could not be protected, could it?

Mr. Sizer: Yes. Soda water hasn't any soda in it. Take "Grape Nuts"—that is a breakfast food, and nobody will pretend that it has any grapes in it or any nuts.

The Court: You are getting away from the question.

Mr. Sizer: I say although there are no grapes and no nuts in the product, that is a recognized thing, that it has come to be recognized as a breakfast food and will be pro-

tected.

Mr. Miller: I object to counsel using illustrations like that as being sanctioned by the Government. There is no proof of that.

The Court: Counsel did not mean to say or to imply that it is sanctioned by the Government; he is merely using it as an illustration of what was not recognized as an infraction of law.

Mr. Sizer: That is all I meant. I do not know whether the Government sanctions it or not, but I say as a matter of common knowledge, everybody knows that "Grape-Nuts," when you used that hyphenated name, does not indicate a product that has grapes or nuts, but it indicates this particular article manufactured by a particular concern.

Now, the mere use of a name of that kind, the mere fact that we use the name "Coca-Cola," does not necessarily indicate that we have in that substance anything derived from the coca leaf or cola nut.

The Court: But would not that be a fair question to go to the jury? Could I absolutely say that the use of the word might not mislead the average man?

Mr. Sizer: If there were any proof that we had made any representation at any time that we had any coca or cola or anything derived from the coca leaf or the cola nut in this product, or if there was any proof that any man of the many millions that have drunk Coca-Cola, bought it under a misapprehension that it had something from the coca leaf or the cola nut, there might be.

The Court: Would not that be a matter of all questions—proper to be submitted to a jury of twelve men to get their average judgment rather than to have the judgment of one person?

Mr. Sizer: In view of the fact that there are probably as many of these compound names that are totally misrepresentative of what is in the compound as there are names that describe what is in the compound, I submit that the name does not constitute misrepresentation on that subject at all. There must be some evidence indicating that the manufacturers of this product hold it out as containing such and such substance.

Now, counsel referred to the Syrup of Figs Company, and that might be said to be nearer sustaining their contention than anything else, but when examined it does not do so.

The Court: Where is that case?

Mr. Sizer: 73 Fed., and the opinion is by Judge Taft of the Ciccuit Court of Appeals.

Mr. Miller: It finally went to the Supreme Court of the United States but I have not the citation here.

Mr. Hirsch: I have the citation; I can get it.

Mr. Sizer: I think that case illustrates the difference between the contention of the Government and our contention in this case. In the Syrup of Figs case the manufacturer of Sryup of Figs had filed a bill to enjoin another concern from using their name, claiming they had used it a long time and had acquired the exclusive right to it, and that the use of it by another was unfair competition.

In the first place it appeared in the veidence that there was not a trace of figs in the syrup, not even enough to give it a flavor.

Mr. Miller: A small percentage.

Mr. Sizer: Not enough to give it a flavor, and on the wrapper the manufacturer represented it contained an essential quantity of figs and that was one ground on which the court decided it. In the third place, the court held to call a thing a syrup of any product necessarily implies that it is derived or manufactured by stewing up that particular article in sugar, that the name implied that it was a product derived by stewing up figs with sugar, and the court held that the complainant did not come into court with clean hands, that the complainant misrepresented by their wrapper what was in the product and that they could not give an arbitrary name or trade name but it must be descriptive of what was in the article, and the bill was dismissed for that reason.

But even in that case, assuming that Syrup of Figs had been used by that manufacturer for a term of years to designate the particular product that he himself was putting on the market and no one else had ever manufactured anything under that name, I submit if the Government were prosecuting that man under this law and charging that he was guilty of adulteration or misbranding because he was misrepresenting the contents of his compound, it would be sufficient answer for him to say: "I have used that name exclusively for twenty years and the name has never been applied to anything else but this product, and therefore it is a distinctive name."

Mr. Hirsch: The citation is 187 U. S., page 282, and the opinion is by Judge Shíras.

Adjourned to Wednesday, April 5, 1911, 9 o'clock A. M.

CHATTANOOGA, TENNESSEE

WEDNESDAY, APRIL 5, 1911

NINE O'CLOCK A. M.

Court met pursuant to adjournment.

Appearances: Same as before.

ARGUMENT ON MOTION FOR PEREMPTORY INSTRUCTIONS CONTINUED.

The Court: You may proceed with the argument in the case on trial.

Mr. Sizer: If your Honor please, I think it fair to adverse counsel to call attention to another case that we have on the added ingredient question. It is decided by Judge Russell in the United States Circuit Court for the Eastern District of Texas, a suit brought by the Coca-Cola Company against the Pure Food Inspector of Texas to enjoin him from interfering with the sale of Coca-Cola in the State of Texas, and we have a certified copy of the bill and answer in that case which shows that it was alleged in the bill and admitted in the answer that the caffeine in it was put in it in the process of manufacture in the resultant compound called Coca-Cola.

Now, it was contended by the complainant in that case that that was an added ingredient and on the bill and answer the judge granted an injunction restraining the Pure Food Commissioner from undertaking to interfere with the sale of Coca-Cola under the Texas Pure Food Law which is identical with the National Law.

The Court: Is the Texas law cited?

Mr. Sizer: Yes, we have a copy of it.

The Court: Well, I asked for authorities about a week or ten days ago and you said there were none.

Mr. Miller: That is not an adjudication at all; it is only a preliminary hearing and not an adjudication.

The Court: Well, that is a matter for me to consider. I am very regretful to have cases submitted to me at this late date instead of earlier.

Mr. Sizer: We should have submitted this. The fact is that we had so many other things in our minds that it did not occur to us at that time. I will pass this to Mr. Miller. Have you got a copy of it, Mr. Miller?

Mr. Miller: I have not a copy. I understand there was such a case and that it was on the question of a local corporation.

The Court: You may proceed.

Mr. Sizer: In addition to the authorites I submitted to your Honor yesterday on the misbranding feature, that is as to whether or not the use of the name Coca-Cola was of itself a representation that there was anything in the product derived from the coca leaf and cola nut, I have the opinion of Attorney General Bonaparte on the ques-

tion of whisky, that is brands compounds and imitations thereof—

The Court: Which opinion is that?

Mr. Miller: F. I. D. 65.

Mr. Sizer: He says that the primary purpose of the Food Law is to protect against fraud, and that as an incidental or secondary purpose it seeks to prevent or discourage the use of deleterious substances. That it tends to discourage it because it requires certain substances to be stated—first, that when a man goes to buy an article or purchase an article that the food or drug shall contain nothing different from what he intends to buy—and I will read from the case. (Reading.)

And the Mapleine case.

The Court: I am familiar with that.

Mr. Sizer: The facts in that case were based on the proposition that the Government said that the word Mapleine—that the suffix "ine" in the word Mapleine indicated something coming from the maple. They introduced a number of witnesses who testified that as they understood in the trade, whenever an article has that sore of a suffix it means the article is derived from a substance or food product which constitutes the principal part of the name.

Now, the court said even in that case if this was a distinctive name although it involved a limitation as to the constituents of the product, the defendant was permitted to use it—

The Court: What is the number of that Food and Drugs judgment?

Mr. Miller: 163.

The Court: I have not that here but I have read it before.

Mr. Sizer: I will call your Honor's attention to a statement of the court in the course of the trial of that case.

The Court: Has any one an extra copy of that 163? I want to get a copy of it.

Mr. Miller: We have two and I will loan your Honor one.

The Court: I would like to get one to keep.

Mr. Hirsch: I would be glad to let you have it.

Mr. Sizer: Some question arose in the trial of the case as to the effect of these regulations made by the three secretaries for the enforcement of the law.

The court says this: "The latter part of the rule"—that is, the one which refers to the fact that no misstatement shall be made as to the place of manufacture, and so forth—

The Court: What do you cite that Mapleine case for?

Mr. Sizer: On this point, that although the Government said in there—although they proved by a number of witnesses that the word "Mapleine" indicated to the public that the food product known by that name was derived from the maple, as a matter of fact it was made from the corn cob. The court charged the jury that it was a distinctive name and that the defendant was entitled to use it. I will read your Honor what the court said on that point.

The Court: I did not understand it that way. I understand that the court charged they might take into consideration the question of whether it was a distinctive name and determine whether any of the circumstances showed that the public was misled.

Mr. Sizer: When your Honor reads that charge in connection with the testimony—

The Court: : The court charged on page three that another question which they should take into account was whether it was known as an article of food in its own distinctive name—

Mr. Sizer: On page four, at about the fourth or fifth line, the court says: "If you believe that Mapleine has been on the market for a sufficient length of time and has been sufficiently advertised so as to become generally known to the public as to the article containing no maple syrup but only a maple flavor" and then stated this in the question, whether it was deceptive.

Now, here is what the court said in the discussion of the regulations of the Secretary:

"The latter part of the rule certainly goes beyond the force of the statute. The latter part of the rule is that a distinctive name shall give no false meaning as to the characture or place of manufacture."

The Court: From what are you reading?

Mr. Sizer: From the record of the trial of the Mapleine case. It is not in the printed record. Now, the court says "Now, that is clearly beyond the purpose of the act because a name may give such a false meaning and still may become a distinctive name undoubtedly; that is, may become to mean something that is so distinctive that nobody is deluded or deceived."

Your Honor will perhaps recall that in the Canadian Club Whisky case, the Government contended most strenuously that there could not be a distinctive name based in any way on the constituent elements of a food product, they said it must be an arbitrary name and without reference to what was in it.

The Court: The Attorney General holds otherwise,

though.

Mr. Sizer: In that particular case. He said you might take a compound name, the constituent parts of which were well-known names and applied to other articles and by putting those two names together in a way in which they had never been associated before and applying that to the compound product would get a distinctive name in that way.

The Court: I do not remember that he went hardly that far. He was just talking about Canadian Club Whisky.

Mr. Sizer: He said: "Canadian Club Whisky is, therefore the distinctive name of a whisky so called; that name distinguishes the product to which it is attached from all other whiskies and clearly identifies it as the particular kind and brand of whiskies made by Hiram Walker & Sons (Limited) at Walkersville, Ontario. The name distinguishes the particular goods in relation to which it is used from other goods of a like character belonging to other people."

The Court: I understand that but I understood you were saying that the Attorney General said in that opinion that a man might make two real substances and compound them into a trade name that did not contain either of them.

Mr. Sizer: The result of his hold necessarily involved that. He did not say that in so many words, but that is undoubtedly the import of what he did say. Now, I quote from the brief of the defendant in that case:

> "It is the combination of words which makes the name distinctive, not the arbitrary or fanciful character of the separate parts."

And then he quotes from the American and English Encyclopedia of Law as follows:

"Mere length in a collection of words not peculiarly arranged, and purely descriptive, does not make it a valid trade-mark. But if any one or more of the words used be arbitrary, it will support the use of other words which are either geographical or descriptive, and the combination as a whole will constitute a valid trade mark or trade name. The combination of words is a very common form of valid trade-mark, and the combination may be sustained though the elements taken separately are not capable of exclusive appropriation. Upon the other hand, the appropriation of a word in one combination does not prevent it being used in other combinations not likely to deceive."

The Court: The material point is whether the words "Coca-Cola"—with a dash between them—indicates that

there is any coca or any cola in it; that is the material question. I will ask the Government counsel to state at the proper time what they think it indicates. Does Coca-Cola mean that the coca leaf and cola nut is in there, in its entirety, or that the essence of coca or essence of cola is in there?

Mr. Sizer: On that, our point is that in the absence of proof tending to indicate what those words would mean in the compound, something in the nature of the proof in the Mapleine case, the jury could not speculate as to it.

The Court: Would not that be a question purely of a character to go to twelve men supposed to represent the average sense of a community, and would not what they would understand be about what the general citizens would understand? Is not that a question for a jury of average understanding?

Mr. Sizer: In view of the fact that there is such a vast multitude of distinctive names that have no reference to the constituents of the compound, I submit that the mere fact that a name of that kind is used does not afford any evidence whatever that the manufacturer intended to represent that there is anything in the compound derived from the substances on which the name is based, and that was evidently the view taken of it in the Mapleine case and the Government attempted to prove what those words would signify to the public.

The Court: I suppose your contention is that the test of whether those words or the pictorial representation on the label are deceptive, in the effect it would have upon the average man of ordinary understanding and not upon the expert? I suppose you rely upon the opinion of Attorney General Bonaparte?

Mr. Sizer: Yes, what effect it would have on the people who but it, upon the public. Now, suppose, to illustrate something near at home that the manufacturer of this product twenty years ago called it Oak-Hickory, well-known trees known to everybody. If he had represented that that substance was composed of the essential elements from the oak and hickory trees, that would be misrepresentation, unless it did contain those things. But the mere use of that fanciful name of two names that do not represent anything to the public but with which the public were familiar—that the use of that name would afford no evidence that the manufacturer intended to mislead the public with respect to that product, and the fact that they had oak leaves and hickory leaves around the keg would not change it. That is merely a representation. And it is clear here that the use of a pictorial design was

not intended to deceive the public, the public did not see it, it was simply on the barrels, and the man who buys Coca-Cola at the fountain buys it because he wants that particular product known by that particular name without reference to what is in it.

Now, as to the question of whether there is any appreciable substance from the coca leaf or cola nut in the product, I take it that would be a question of fact, although it seems to me inasmuch as several witnesses—practically all the witnesses who testified to the process of manufacture—say it does go in there, the mere fact that some of the witnesses for the Government say they cannot detect any in the compound that they could trace to the coca leaf or cola nut, would not be evidence to go to the jury if they find there was any coca leaf or cola nut.

The Court: The cola nut is not in the case. The libel says there was little if any. I have ruled that question out.

Mr. Sizer: Now, a word about the elimination of cocaine. The undisputed evidence on that point is that the cocaine was never part of the formula. It was never known to be in this compound until the testimony in the case of the Coca-Cola Company against Rucker developed through Doctor Crampton that there was a small trace.

The manner in which that got into is that they undertook to decocainize the leaves at the factory—

The Court: I don't see that that cuts any figure. If you have built up a distinctive name on the compound in the last ten years without cocaine, that raises your question without regard to what was in there before that, in my judgment.

Mr. Sizer: We wanted to go further and say that the elimination of that part of what was not an appreciable amount was not any adulteration or alteration of the substance itself, and therefore it would not constitute any change in it such as would interfere with our right to use that name and put that product on the market under that name.

The Court: After that question, it would probably be a question with the jury if the question were material whether there was sufficient cocaine in there before the change was made to have a material effect upon the ingredients by taking it out. I should regard that as a question for the jury.

Mr. Sizer: That would be so if anybody testified to it, but even Dr. Kebler said that whatever cocaine was in there would not produce any appreciable effect so far as he knew, and there was no evidence that it would produce

any appreciable effect.

Now, there is a case in 132 Michigan to which I want to refer without reading.

The Court: What page?

Mr. Sizer: Page 632.

In that case they took out an unimportant ingredient and for the purpose of improving the mixture, put something else in, and the Court held that was not an adulteration and the article is still unchanged.

The Court: On what do you cite that?

Mr. Sizer: On the proposition that if cocaine was an undesirable element and present in a very small quantity, as shown by all the proof and to improve it and make a better article not obnoxious to the law they took out that inappreciable amount of cocaine, that would not be an adulteration and would not affect their right.

The Court: If it was unappreciable, it had no effect one way or the other. If it was appreciable, of course taking out the cocaine would distinctly change the character of the article.

Mr. Sizer: Yes, but there is not a syllable of testimony that it was appreciable. On the contrary, Dr. Kebler admits that he is not able to say that it was appreciable.

The Court: As I say, if that becomes material, that will be a question for the jury.

Gen. Cox: Does your Honor want to hear from the Government?

The Court: I think you had better present your views. This is a very serious question, and I want all the light I can get on it.

The first question on which I would like to hear from you is as to the meaning of the word "added" and what the Government contends is the substance adulterated by the addition of caffeine.

Does the Government say that the coca is adulterated by adding caffeine or that the cola is adulterated by adding caffeine, or that Coca-Cola is adulterated by adding caffeine. The libel claims that Coca-Cola is adulterated by the caffeine, and if you cannot have Coca-Cola without caffeine, how can you adulterate it by adding caffeine to it. That is the trouble I have.

Gen. Cox: The section of the statutes which refers to that part of the question involved, we find—

The Court: I am thoroughly familiar with the statute, I think.

Gen. Cox: I just want to refer to it and use the words to give the Court our construction of it. Under Section 8, the 4th clause.

The Court: You mean Section 7?

Gen. Cox: Yes, that is the wrong one that I referred to. It is under Section 7 and the 5th clause and also under Section 8 and the 4th clause. Taking the two together, we are of the opinion that the word "added" refers to poisonous or deleterious substances. You will see by reading the 4th clause of Section 8 that after it says "if the package containing it shall bear any statement design or device regarding the ingredients of the substances contained therein, which statement, design or device shall be false or misleading in any particular" it goes on provided that an article of food which does not contain any added poisonous or deleterious ingredient shall not be deemed to be adulterated or misbranded in the following cases, and, and that is where counsel for the claimant go astray or get in the field as Mr. Williams said. If I can differentiate in the mind of the Court what we conceive that to mean, that is this; that you cannot add any poisonous or deleterious substance, which I suppose would infer in these cases that you can add things which are not poisonous or deleterious which question probably was considered in the Canadian Whisky case—

The Court: There is no doubt about that proposition, but what do you mean by added?

Gen. Cox: It means that which is a part of the compound.

The Court: But now suppose that you sell a compound of salt and strychnine under the name Salt-Strychnine. Do you say that the strychnine is added? It would not be a compound of salt and strychnine unless it would contain the strychnine.

Gen. Cox: If it is claimed by the claimant that they can put one part of the article in the compound and not say that the remainder is added—just take figures. Add up a column of figures, the first figure that is put down is not added. In this case it might be possible that caffeine is the principal ingredient in this compound, but as to whether it is added or whether the other is added to it seems to be a question that answers itself, that they are all added. For instance, if you take 1.21 per cent and say that it is not added to the 98.79 to make the 100 per cent, that would be drawing the matter very fine.

The Court: Don't your argument lead to this, that if the compound contains a poisonous or deleterious ingredient, it cannot be sold without violation of the Act. Suppose a druggist puts up a compound and labels it Salt-Strychnine—

Gen. Cox: But that comes under the Act that applies

to drugs. A druggist can sell drugs that have poisons by putting it on the label.

The Court: No, he can't. There is something said about that certain poisonous drugs must be stated on the label.

Gen. Cox: This is a drink and it is not a drug, but it comes under that part of the statute which refers to food, not saying it is a food, but it comes under that part of the statute which regulates the sale and the mixture of foods. Reading Section 6 you will find it does not come under the law which governs drugs, but under the law which governs food, and there is quite a difference between the application of the law there under Section 6. That refers to drugs, and the one which applies to foods. I do not mean to be understood as saying that that is a food but it comes under the law which relates to and governs food, so that the part I want to refer to and keep from being confounded or getting our minds mixed on the question is that we refer particularly to that part that applies to food as provided for under Section 6 of this Act.

Gen. Cox: Now, if your Honor please, when we take up the question of added ingredients—

The Court: Suppose you have a food mixture or a compound that is advertised as a compound of vinegar and acetic acid and which is labeled as a compound of vinegar and acetic acid, would you say the acetic acid was an added deleterious ingredient, assuming that it is deleterious? Could you say it is added to that compound if you sell it as one compound of vinegar and acetic acid?

General Cox: I should say if it contained a poisonous and deleterious ingredient, it would be.

The Court: How would it be added?

General Cox: Because it is added.

The Court: Well, there is prussiac acid in peaches but that does not make it an added ingredient.

General Cox: But, your Honor, Mr. Heyburn said in that connection—

The Court: I have read that—I have read all of that.

General Cox: I think that answers the question. He says this bill in using the word "added" was intended to go no further as to health of human beings than under the law of nature in the consumption of nature's products—that is the way "added" is used. It is put in the product and you add to the combination a single substance, it is an added poisonous substance. Then these are the words—

The Court: You say in your libel further that the product Coca-Cola is adulterated by adding caffeine.

What is adulterated by adding the caffeine to it, what is the original substance?

General Cox: A substance that is adulterated.

The Court: A compound cannot be adulterated by adding something to it, putting something in it that is essential to it. You cannot adulterate a thing by adding something to it which is essential to its very existence.

General Cox: You see, the compound was made of different parts.

The Court: You have charged in your libel they have adulterated Coca-Cola—that they have sold either coca or cola, and that they have adulterated Coca-Cola. Now, if Coca-Cola is a compound consisting of caffeine, how could it be adulterated by adding because it has caffeine in it? How is the caffeine added to it if it is a part of it?

General Cox: I cannot make myself any plainer understood by the Court than to say if caffeine is in it, it is a part of it and it is the thing that makes it adulterated. It is a question as to whether or not that is poisonous or whether or not it is deleterious, the question as to whether it is deleterious is the whole matter—if it is in it I can't conceive in any other way in the world but what it is added to it, it is not a natural substance.

The Court: You treat it as if the word "added" indicated it contained deleterious or poisonous substances—

General Cox: I didn't mean that exactly.

The Court: That is what you said.

General Cox: That is a compound which has this deleterious or poisonous substance in it—the question of whether it is deleterious or poisonous is a question as to whether it is added.

The Court: Then you say if a compound or food contains a poisonous and deleterious ingredient, then it is adulterated if it contains it, leaving out the word "added."

General Cox: If it is a mixture—that is, if it is a man-made substance, if it is a compound or substance that goes on the market other than the natural ingredient, I would say if it has in it a poisonous or deleterious substance it is added.

The Court: But where do you get any justification for the distinction between the word "added"—the distinction in the word "added" as between the natural compound article—

General Cox: The Statute states that.

The Court: Well, in California the apple is not adulterated because it has boric acid; it is a part of it and not added to it, and the fact that the apple contains boric

acid does not make it an adulterated article. Where do you get anything in the Statute that indicates that the word "added" applies to natural articles and not to a compound?

General Cox: That may be explained in the language of Mr. Heyburn.

The Court: I have read that. I understand his views. I want to get something from the statutes that draws a distinction.

General Cox: I wanted to read that to show your Honor the difference between a natural thing and a compound thing.

The Court: I understand the difference between a natural thing and a compound.

General Cox: This is the only thing I can direct your attention to immediately. It says any article of food which does not contain an added poisonous or deleterious ingredient shall not be deemed to be—etc. I do not know that I can make it any plainer to your Honor's mind.

The Court: It seems to me from what you say that it means nothing. You want to construe the Act as if the word "added" was not in there.

General Cox: If this is purely a caffeine article why not call it Caffeine, and why should they be allowed to call it Coca-Cola? If it is caffeine alone and has nothing but caffeine and a little water and some other matters mixed with it, it should be called Caffeine and should not be called Coca-Cola. I cannot understand that it can be added one way unless it is added the other, whether a deleterious or poisonous substance—and that question of a deleterious or poisonous substance is the prime question in this case. I think it is a question that should go to the jury on what they think about the matter as throwing light on the question of whether it is added or not.

The Court: As to whether or not it is deleterious, I think the evidence is such as to make it not a question of law for the court but a question for the jury, if we reach that point, but my trouble is—how are you going to reach that question?

General Cox: I might throw some light on this from another phase—that is, whether in reference to the distinctive name of this article, that gives them any right to sell this product. Mr. Williams asked me the question and he said that they had a right to sell under the distinctive name as he claims in his argument, that there is no proof that there was no such an article or product as coca or cola and he asked me to find in the record where there was any reference to prove in this case as to coca or cola

prior to the time they used these words coca and cola. I suppose he meant for such reference as coca and cola.

The Court: I do not think that question material.

General Cox: Then if that is not material I will answer the question by saying that Doctor Rusby said in his deposition—

The Court: I do not think when the words coca and cola got into general use is material in this case. It is the question of the fair meaning of it at the time of this libel—at the time of the seizure.

General Cox: It is a question of what?

The Court: So far as the matter of misbranding is concerned the question of the fair meaning of the words coca and cola, what those names fairly implied at the time of this seizure. It is not a question when they got into use.

General Cox: If you do not want me to answer that question,—he asked it. I refer to Section 246 where thousands of pounds in 1886 were used—I believe that is all I care to say.

Mr. Miller: May it please your Honor, it is my time next to be pounded with interrogatories.

The Court: Yes, I am very liberal with interrogatories. I find it brings the matter more to issue probably more clearly than any other way. I know counsel want to know what they have to meet.

Mr. Miller: I want to say on the reading of the Statute myself, a reading of the Statute alone without more, without considering the utterances of the giant minds of the nation at the time it was passed in connection with it, and in such connection as I believe the courts have universally held, we may consider such utterances to determine the intent and meaning of the law, that I find no distinction between what might be, or what rather was termed to be at the time the Statute was passed originally, substances, those which are secondary or artificial substances as respects this word "added" which appears to be giving your Honor some trouble. If we may look, however, into the motives which actuated the passage of the law, and I think we may, and to the utterances that were made at the time, that is, such utterances as the Court has held we may consider—and then interpret the law in the light of those utterances, I think there is a clear distinction drawn as to the use of this word "added," as to why it was inserted originally.

Why, when Sentor Foraker undertook by amendment to limit it, the amendment was voted down,—just what it means. I understand in that connection as your Honor

has indicated, that there was a general acquiescence in the doctrine that reports of the committees might be looked to and remarks of the chairman who had charge of the bill might be looked to, and that the legislative journals might be looked to for the purpose of determining—and I might say, indeed, the history of the times as a United States Supreme Court has said—

The Court: The extent to which the legislative journals may be looked to to show the votes that were taken, not to show any remarks that were made.

Mr. Miller: Yes, to show the amendment was overruled, that it was offered and voted down, and the United States Supreme Court went so far as to say that we might look to the history of the times, but what they meant by the history of the times or how it might be proper for the Court to take judicial knowledge of it, I am not prepared to say.

The Court: That was in the Trinity Church case.

Mr. Miller: Yes. Without looking to the history of the times, but only as to the introduction of the bill and its passage through the House and the Senate, I call your Honor's attention to what I consider to be the remarks made by the chairman having in charge this bill in response to interrogatories as to what was meant by the word "added" where the application of the word is made direct to mixtures and compounds but it is not made and it is not intended to apply in the case of the original substance like the apple or the peach unless it be brought in contact with the apple or peach, but as to mixtures or compounds the word "added," as I think, is clearly shown by these utterances means every ingredient that went into the mixture and compound.

The Court: As I said, I have read those carefully. If there is any particular part you wish to call my attention to I would be glad to hear it. I do not care for the general statements. You have kindly furnished me with this copy and I have read it over.

Mr. Miller: Yes. There is very little of it I care to refer to and that is Mr. Mann's statement; I do not know just where it is there but it is 9181—your Honor said that one side relied on Mr. Mann's statement and another on Mr. Heyburn's. They are about identical and in accord, I think. When Mr. Mann was questioned about it, here is what he said—

The Court: Is that the typewritten copy?

Mr. Miller: I do not know what portion it appears on; it appears in the Congressional Record, Vol. 40, Part 10, Page 9181, and in speaking of this bill he said: "The

bill does not require the quantity of the ingredients to be stated in the vended materials unless"—

The Court: (Interrupting) They were speaking specifically with reference to the clause stricken out as to whisky. There is a good deal of that language which is applicable to whisky.

Mr. Miller: He was questioned as to what an added ingredient meant.

The Court: As used with reference to whisky.

Mr. Miller: I do not think he was doing that from an illustration that he gave because here is what he said "The bill does not require the quantity of the ingredients to be stated in the vended materials unless as in the case of narcotic drugs but forbids the introduction into any food of articles which are deleterious or injurious to health or which conceal the bad quality of the article." Now, it does not purport to say that if a man makes a breakfast food partly of corn and partly out of wheat, he shall state the proportions of each. I do not recall the exact test but I do not think it has any reference to whisky, but he was talking about foods there, pure and simple. In this distinct statement by the chairman of the House Committee, in charge of the bill, except in the case of narcotics the phraseology of the bill with the word "added" therein was to prevent the introduction of anything into food articles which is deleterious.

The Court: If that it what they meant, doesn't it seem that they use very intricate language to express it?

Mr. Miller: They debated for quite a while as to proper language to use there, and that is what they said.

The Court: Does that particularly limit the meaning of the word "added" when applied to a compound?

Mr. Miller: As applied to a compound I am not prepared to say. He puts it on this construction—every ingredient added—and they had to get something that would harmonize. And when they would determine as to what phraseology would best express the distinction they attempted to draw between a food or substance in its original state which was not to be made deleterious, and mixtures or compounds, they use the word "added."

The Court: Well, that purpose could have been so easily explained by very simple language, that any substance should be deemed adulterated which contained any poisonous or deleterious substance or ingredient, except the natural article sold under its distinctive name, and the use of this very language is so indefinite and so difficult to reconcile that that gives me some trouble.

Mr. Miller: To show that—but not binding on your

Honor, that is exactly the construction this law has received by the secretaries when they came to formulate the rules and regulations for the enforcement of this law, and they distinctly stated in one of their regulations that any food product—that is regulation thirteen—any food product which contains naturally a poisonous or deleterious ingredient does not come within the provision of the Food and Drugs Act except when the presence of such ingredient is due to filth, putrefaction, decomposition, etc. And, of course, as I say, that is not controlling, that is merely a conclusion that the secretaries came to when they came to make up these regulations.

The Court: Read that over.

Mr. Miller: In Regulation thirteen it is provided that any food product which contains naturally a poisonous or deleterious ingredient does not come within the provisions of the Food and Drugs Act except when the presence of such ingredient is due to filth, putrefaction or decomposition, so that—

The Court: You could, according to that, make a combination of two natural products which contained each of them, deleterious substances.

Mr. Miller: I do not think you can under this law.

The Court: Under that definition, I mean.

Mr. Miller: That definition—no, sir, I do not think so, because they meant to exclude just such combinations because it is stated that this product—any product which contains naturally poisonous and deleterious ingredients does not come within the provisions of the Food and Drugs Act.

The Court: Well, suppose peaches and apples, each containing deleterious substances naturally, are put in combination, the result is a compound which contains naturally poisonous and deleterious ingredients.

Mr. Miller: They contain it naturally.

The Court: Combining the two, is it still a natural ingredient?

Mr. Miller: The poison that was there was there naturally, as a natural ingredient originally. I should say yes.

The Court: Your argument would be under this law you cannot combine them but that you may sell two natural articles, each of which contains poisonous ingredients, without violating the law, but you cannot combine them in one article which contains both and the same poisonous ingredients?

Mr. Miller: I am not prepared to express an opinion on that but I do not think we are compelled to face that in

this case.

The Court: I asked that because I want to see what the sound construction of this language is; I am hunting some construction that reconciles this language and makes good sense.

Mr. Miller: To start with, the Government in this case has shown that caffeine was added to this product.

The Court: That is a question about which there is the very gravest doubt, if you use the word "added" within the meaning of the Statute. It is shown that caffeine is in the product.

Mr. Miller: In greater proportion than it appears in the cola, that is the point.

The Court: Yes.

Mr. Miller: If this were merely a combination of caffeine substances and coca substances in the relative proportions that those ingredients appear naturally—

The Court: I have not worked that out. I suppose you are right about that; I meant to inquire about that. Suppose a compound was half extract of coca and half extract of cola, how much caffeine would be in an ounce,—how much caffeine would be in an ounce? Suppose it had no chocolate or simple syrup or anything else.

Mr. Miller: I really will have to call on someone else to figure that out.

The Court: It might be put on the basis if it contains nine-tenths of coca and one-tenth of cola—if it contained any appreciable quantity of the extract of cola—I am not sure that you could not work that out, it might show that it would contain as much caffeine as is in Coca-Cola syrup. I would like to have figures on that and like to have it worked out.

Mr. Miller: I am informed and I know it to be a fact if I know anything from this proof that there is no caffeine in coca.

The Court: The proof shows that.

Mr. Miller: And in cola I am informed that if it were one-half, or, indeed, nine-tenth constituents of cola, there would probably be not as great a proportion of caffeine even then as appears in this mixture.

The Court: I say, I would be glad to have it worked out. Work it out on the basis of coca and cola, one-tenth coca and nine-tenths cola, that will give an appreciable quantity of coca, and see how much caffeine would be in an ounce of that fluid extract.

Mr. Miller: I will ask the doctor to do that. The Government has proven undoubtedly that there is more caffeine contained in this compound than is derived from

the cola that enters into it and that it is caffeine that is introduced from an outside source.

The Court: There is no doubt about that proposition, that it is introduced from an outside source—caffeine is.

Mr. Miller: Now, your Honor asked me further with reference to a combination of apples containing natural substances, deleterious substances, and peaches; that might contain a limited percentage but in natural combination. That was one of the very things that was so carefully debated in Congress where both chairmen were interrogated as to the natural combination, and in each instance they gave samples, as wheat, barley, and all those things and said you could extract poisonous substances from them, but that you could not take that substance, if it was extracted, and put it into another mixture—

The Court: I will tell you my impression as to those things. They do show, undoubtedly, that they did intend to treat natural poisonous ingredients that were in natural articles not in violation of the law, but I do not find in the debate from either Chairmen or the committees that their mind was directed to the problems that we have here. It does not seem that they thought about the application of the law to an article of this sort. I do not find any expressions of either chairman, anything that indicates anything about it. They evidently did not think about it, and I do not offer that in support of any criticism of the drafting of the Act. In drafting an Act one cannot see everything that will come up, and this combination or artificial combination did not enter into their minds; they were thinking of natural products like the apple—they were thinking of a product like whisky that had certain constituent combinations, as you know, but they were not thinking of something made up artificially.

Mr. Miller: With the greatest respect for your Honor's view after having read these excerpts, it does seem to me when the House and chairman, whose views were so confidently placed on yesterday by adverse counsel—gave as a circumstance breakfast foods, certainly they were considering something else besides whisky.

The Court: Who was that?

Mr. Miller: That was where he said that the object of the bill was to forbid the introduction into any food articles which are deleterious or injurious to health. Now, in that connection he spoke about breakfast foods and it appears to me from Mr. Mann's statement in that connection that he stated that the bill did not require the quantity of ingredients to be stated except in narcotics, but he further said in the same connection that it forbade the introduc-

tion of articles which were deleterious in food products. Now, introduction means to put them in artificially, of course, because they have talked about natural articles—and when I speak of introducing them I mean as a surgeon or physician introduces something into the anatomy—as distinguished from the natural way.

The Court: It seems to me that the language is capable of construction—that the Chairman had in mind that you were not to introduce into any article of food, any natural article of food, any deleterious ingredient that was foreign to it.

Mr. Miller: Natural article of food—

The Court: He goes on to illustrate by wheat and corn and his illustration shows there he had that in mind.

Mr. Miller: Your Honor will bear in mind—

The Court: That is the way I take it.

Mr. Miller: Your Honor will bear in mind they passed Section Six of that bill which had defined food and he was not talking about food products—they had passed food products and they had defined them in that Act and the consideration in this connection evidently—they had defined a food product and told what it was, simple, mixed or compound.

Now, then, when he comes to talking about introducing into a food product an ingredient which is deleterious to health, how can it be said that when they had defined food products as being natural and artificial both, that that word "introduction" is made to apply only to natural substances?

The Court: I do not think it is meant to apply to natural substances—I can give you an illustration of what an added ingredient to a compound which to my mind would be fairly within the law. In other words, suppose the Government had proven in this case that the compound Coca-Cola had never contained caffeine, that they had been selling a compound of caramel, phosphoric acid and sugar and water—that it had never contained caffeine and that they suddenly began to put caffeine in it and that they had introduced into this substance Coca-Cola a new substance known as caffeine. In other words, that would be adding caffeine to Coca-Cola because caffeine is not a part of Coca-Cola and was not a part but they added caffeine, then the Government would unquestionably have had the right to say that if that caffeine was deleterious or poisonous that was an added ingredient to Coca-Cola.

Mr. Miller: It seems to me, if your Honor please, that goes back to the principle that is relied on here by way of combination—that is, distinctive—and furthermore pre-

ceeds on the assumption that before the claimant can be brought within that exception, it must establish that its compound contains no added deleterious or poisonous ingredient.

The Court: In the libel you say that Coca-Cola is adulterated with caffeine. What is adulterated?

Mr. Miller: We say the entire mixture is.

The Court: A mixture cannot be adulterated by one of its own constituents.

Mr. Miller: That is where, perhaps, we hold somewhat radically different views. We think a mixture can be adulterated by one of the ingredients being a deleterious or poisonous substance, and that as evidence of that fact, the law-making power, when it comes to more powerfully poisonous substances, expressly provides without different limitation at all that the particular quality of this more powerfully poisonous substance should be written out and put on the label, and yet that distinction that your Honor draws or that is suggested by adversary counsel, finds no support in the discussions on that question.

The Court: Don't you think your label would have been demurrable if you had alleged that one of the constituents of Coca-Cola compound was caffeine, and you had omitted the word "added" instead of saying that it was added that that was one of the constituents?

Mr. Miller: I don't think so.

The Court: Then if you had left the word "added" out, under what section could you have maintained your libel—don't you have to allege that it was added?

Mr. Miller: The claimant must bring it within the exception.

The Court: Don't you have to prove that it is added to this ingredient—that the ingredient is added to this compound, and don't they have to show that it is not an added ingredient to the compound but that it has been a constituent element of the compound, that it is now and always has been.

Mr. Miller: Because they have used it that way, there is no iron-clad formula about it requiring that. That is what they are relying on in confession and avoidance. If we had alleged pure and simple that they had been making Coca-Cola and had taken the cocaine out at a certain time, if we could have gone further and said, which I think this Law justifies us in doing, that one of those ingredients they had been putting together and selling to the public is a deleterious and may render the product injurious to health, that would have made a clear case of complaint by the Government and would have warranted

the seizure.

The Court: But you don't aver it that way. You averred that it contained an added ingredient, caffeine.

Mr. Miller: And we inferred it was deleterious.

The Court: But you aver that caffeine was an added ingredient.

Mr. Miller: And by that we meant it was the one thing that went to make up the mixture that was added to the whole. Now, I know your Honor is not playing with words, but if this were a play on words pure and simple, if we were to go back to the foundation, we find from the foundation that the first that is done is to put something else in the mixture, and to keep adding until caffeine comes in.

The Court: The question of which goes in first is utterly immaterial.

Mr. Miller: I think so.

The Court: The only question is whether or not the ingredients can properly be said to be an added ingredient to an artificial compound when it is especially an ingredient of the compound and has always been an essential ingredient of it.

Mr. Miller: Now, let us see about that.

The Court: I suppose there is no dispute about the fact that caffeine is an essential ingredient of the Coca-Cola compound, that is would lose its characteristic property if it did not contain caffeine. There is no doubt about that.

Mr. Miller: I don't think there is any proof about that.

The Court: There won't be any difference on that point. I think everybody agrees to that.

Mr. Miller: I don't know so well about that that. I don't think there is any proof on that point.

The Court: Well, I will hold that.

Mr. Miller: Well, assume there was, all classes of people stand on an equal footing before the law. Any other construction than that each ingredient is added to each other ingredient seems to me to put on a wholly different footing before the law and before the Courts of the country that manufacturer that was engaged in making up a syrup and selling it to the public before this law was passed in which he put the most vile and deadly poison and that manufacturer who desires to employ aniline or some other poison in manufacturing products after the law was passed.

The Court: Congress can remedy the law if they want to. I am only concerned in the construction of this pres-

ent law.

Mr. Miller: But your Honor will look to see whether Congress intended to draw any such radical distinction as I think, between the class of people engaged in the manufacture at that time, and those who have sought to engage in it since. One company could employ caffeine as much as it liked at the time the law was passed, if this word "added" does not mean what we say it means, that every ingredient put into an artificial mixture is an added ingredient, and another manufacturer engaging in business the next day after the law was passed, can not do it. That is the potent substance in favor of the Government contention here.

That is my argument here, that claimant's argument would allow a manufacturer that was engaged in making up a mixture to continue in business, if he had been engaged before the law was passed making his artificial compound or blend, and a man that was right alongside of him that was putting, for instance aniline dyes into cherries, would be placed on a wholly different footing.

The Court: No, the same thing would apply. The same thing would allow him to start in as far as adulteration with any other different compound with an ingredient that was deleterious, but not to have anything misleading in the brand. He could start in with the new compound containing a deleterious ingredient and yet it would be difficult to see how it was adulterated if he gave it a fanciful name, but he would have to put on the package what it contained.

Mr. Miller: My point is this, the Coca-Cola Company were engaged in using caffeine. Here is a man making aniline dyed cherries. If it be true that each and every ingredient in the mixture of a compound is not an added ingredient, the man making the Coca-Cola will say I will continue to employ caffeine and the aniline dye man, in making his product, is forbidden, according to the suggestion made by your Honor from continuing the use of the aniline dye in connection with the cherries, because it it an added ingredient.

The Court: But cherries are a natural substance and aniline dye is not, and that is added to the cherries.

Mr. Miller: Then apparently, these classes of manufacturers are put on a wholly different footing, if any other contention than that of the Government in this case to obtain, because it would put one out of business and the other could continue.

The Court: The difficulty is that Congress does not seem to have made any provision applicable to compounds,

but that is not the fault of the Court. It may be the fault of the Court if it misconstrues the language of the law, but if that is omitted, that is a matter for legislation.

Mr. Miller: Now, we are not quite done with Mr. Mann, yet. Mr. Mann was asked by Mr. Gaines of our own state, I have not got the page before me but he was asked:

> "Mr. Gaines of Tennessee. Will the gentleman from Illinois tell the committee how he proposes to remedy the evil that he spoke of a while ago about the aniline cherries? That seems to be a pretty dangerous dose.
>
> "Mr. Mann. We forbid the use of these adulterants in the bill.
>
> "Mr. Gaines of Tennessee. Now, what language is used as to that?
>
> "Mr. Mann. The first is the adding of deleterious substances and the second is the adding of anything which conceals the inferiority of the article. Either one of those would cover aniline dyes." (Con. Rec., Vol. 40, part 10, p. 9185.)

Now, of course, if that is meant the adding of deleterious substances to natural substances, then I am in error.

The Court: The question was how they proposed to remedy the evil about the aniline cherries.

Mr. Miller: That was the instance given but it was not the only one because there were various other illustrations made. But after food had been put on an equal footing mixed, pickled and compound had been defined, then he was asked how they proposed to forbid it,—forbid the use of the adulterant, and I think the adding of the deleterious substance consisted in putting them in, and that that would be true whether it was done before or after the passage of the Bill.

The Court: On your theory, it is not the Coca-Cola that is adulterated by adding the caffeine but the coca or cola or the two substances coca and cola that is adulterated?

Mr. Miller: No, sir; I don't think so. I think it should be that the mixture contains poisonous substance by reason of adding caffeine to the mixture, and it makes no difference whether it has been for twenty years or not.

The Court: In other words, you fairly and squarely take the position that as applied to a compound the word "added" has no other meaning and that it is the same as if it contains a poisonous or delterious ingredient?

Mr. Miller: Yes, that is what it leads to, and the reason

for the introduction of the word "added" was to make natural substances simple compound and mixed substances all harmonize, and put the manufacturers of all on an equal footing, and that is clearly brought out, I think as can be when we pass from the consideration in the House where the term introduction was used into the article by Mr. Mann, and come down to what the word "added" meant by Senator Heyburn, and there he began to talk about Nature's substances. Now it will be noted that Senator Heyburn drew a distinction in that body between original substances which he termed more or less of Nature's admixture of ingredients, and secondary substances, which is a thing or mixture as distinguished from original substances. It was said that the grape and wheat and barley and other so-called original substances, were Nature's compositions, while certain poisonous substances might be extracted from them, yet in the happy combination they existed, they were not forbidden by the law. Then he said: "This bill, in using the word 'added' in line 8 page 11, was intended to go further in the threat against the health of human beings than was absolutely necessary under the law of Nature in the consumption of Nature's products. That is the principle upon which the word 'added' is used."

Now, if I interpret that aright it means this, that when you take the original substance, you cannot add to that any more than it contains naturally. If you put anything to it, beyond what it contains naturally, it is an added ingredient. If you take an artificial mixture, you must not put in anything which is poisonous or deleterious beyond the admixture of nature.

The Court: Then you could not make a concentrated extract and sell it on the market if it had anything poisonous or deleterious in it.

Mr. Miller: No.

The Court: It is the changing of the chemistry to which Senator Heyburn seems to be referring. He referred to a compound existing in Nature, now if you take that combination existing in Nature and make a concentrated extract, you have something that is prohibited. Is that your idea?

Mr. Miller: No. There is a provision of law that you can label it and mark it a blend or compound and sell it as much as you like, but when you undertake to sell it as an original substance, you must not put any more poisonous ingredient into it than existed naturally.

The Court: The illustration that Mr. Heyburn used seem to show that his language goes further than was

intended. He was speaking of fusel oil in whiskey and he says that is naturally in the wheat but it is not a healthy thing to take it out and take it as fusel oil, that that is an independent product that will kill because its character is changed, but there is no contention that a man cannot make and sell fusel oil.

Mr. Miller: No, we would have to label it.

The Court: Then you get back to the label. The objection to a combination containing deleterious ingredients is not to the adulteration but the real question is as to whether it is properly branded. Now, if it is misbranded and the label on the combination is deceptive, then it is obnoxious to the law.

Mr. Miller: Undoubedly.

The Court: But it is not adulterated because it contains deleterious ingredients unless you eliminate that word "added" as applied to the compound.

Mr. Miller: When the direct question was put to Mr. Heyburn as to whether every ingredient that enters into a compuond is added, he answered:

> "Mr. Fulton. I am not hostile to this measure, as the Senator knows. It has no stronger friend than I. I intend to vote for it. I should regret very much were it re-referred, but is it a fact that every ingredient that enters into a compound is added?
>
> "Mr. Heyburn. Yes; but there are words of limitation in the bill."

That shows me that he was dealing with combinations pure and simple. He has answered that every ingredient was an added ingredient. The Senate was put on notice of that.

The Court: Where is that language?

Mr. Miller: It is the bottom of page 19 and page 20 of the synopsis that your Honor has. You will find the direct question put to him whether or not every ingredient that enters into a compound is added. Then Senator Fulton goes on:

> "Mr. Fulton. It may be merely an assembling of certain elements and certain ingredients into one whole.
>
> "Mr. Heyburn. Yes; but there is a limitation on the word 'added'. It does not prevent you from adding ingredients to a combination or to single substances; it prevents you from adding poisons or deleterious ingredients; that is all. Those are the words of limitation."

That shows what they thought of it.

The Court: That shows what Senator Heyburn thought.

I do not agree with that.

Mr. Miller: When this question before came up before the giant intellects of the Nation and they were debating it, these satements of the Chairman were made. I don't say they are controlling.

The Court: They are unquestionable persuasive.

Mr. Miller: Undoubtedly and the Supreme Court of the United States has so said.

Now, I want to submit another thought along this line, and that was as to the position taken by the Government in the Hippolyte Egg case that this is a remedial statute and should be literally construed. I don't know whether your Honor has seen a copy of the brief in that case or not, but I have it here, and a large portion of the brief in that case dealt with this particular question, that although this Act was in part a penal act, nevertheless a more liberal construction should be given to it so as to obtain the ends that the law-makers sought when they enacted the bill into a law. The Supreme Court of the United States sustained the Government's contention, and affirmed the judgment below within the last two or three weeks. If there was a written opinion, it has not been handed down.

The Court: I have that opinion, and I don't think it refers to the question or remedial or not.

Mr. Miller: But that was one of the principal questions stated in the brief, as to whether or not this was a remedial statute, and whether or not a liberal construction should be indulged in. Numerous cases were cited in the brief which I could cite to your Honor but I take it in view of the fact that the Government counsel rested their whole case upon the fact that the Act should be liberally construed, and that the decision of the lower Court would have been reversed if the Act had not been liberally construed, it is hardly necessary to pursue that subject further.

The Court: It don't refer to that question in the opinion.

Mr. Miller: No, but one-third of the brief of the Government dealt with the question and apparently the Government rested its contention on that ground, that this remedial statute, although containing a penal clause, should be given a liberal construction, and the defendant contended it should not be given a liberal construction. The Government apparently conceded that if the contention of the appellant was correct in that behalf, the case would have to be reversed, and the case being affirmed, we must naturally assume that inasmuch as the briefs of

counsel dealt with that and that was one of the principal questions debated, it was resolved in favor of the Government contention.

The Court: I should have difficulty in holding that a case decided something that was discussed by counsel in their briefs, when it was not mentioned in the opinion.

Mr. Miller: It appears to have been conceded by both counsel that this Act must be given a liberal construction, else the question the Court did pass on could not be presented to it.

The Court: It is undoubedly true that whatever it be, I am inclined to think it is remedial, and it must be construed with reference to the legislative intent as fairly gathered from it, and no construction will be adopted to defeat that intent, unless required in the language of the Act.

Mr. Miller: That brings us up to the question of the distinctive name, and I should say in passing again, that if we are to give effect to this law and to give it the force and effect that to my mind was intended by the lawmakers, then we must hold that every ingredient that enters into the compound is an added ingredient. One chairman said so and the other, not so clear in his language or rather not so strong, was clearly indicative that that was his understanding.

Now, coming to the question of distinctive name, and that deals with the misbranding of food to a certain extent. By Section No. 3 of the Act certain officials are directed to make uniform rules and regulations for the enforcement of the Act. Now, the deflnition they gave to distinctive name was "A distinctive name is a trade, arbitary or fancy name which clearly distinguishes a food product, mixture or compound from any other food product, mixture or compound." Now I want to submit in that connection that the combination Coca-Cola, whether it be written hyphenated or not, as clearly conveys to my mind as anything on earth can, that there are in that contained the substances known as coca and cola, else what does it mean?

The Court: I have suggested to counsel that that question is immaterial as to what this means, but I would like to know in that connection what the Government insists is meant by that. Does it hold the entire coca leaf or the entire cola nut is in there, or the extract of coca leaf or the extract of cola nut is in there, or what does it say?

Mr. Miller: We insist under all the authorities that the most liberal view to take in favor of the claimant

is that is must contain two things, namely, an appreciable quantity and of desirable quality.

The Court: Do you mean appreciable quantity of the ground coca leaf and of the ground cola nut?

Mr. Miller: Yes, of both—we won't say the cola nut but an appreciable quantity of the cola leaf.

The Court: Of the ground substance or what?

Mr. Miller: No.

The Court: Then what do you mean?

Mr. Miller: I understand, if your Honor please, in the interpretation of these things, that the accustomed officials and others presume on all questions relating to matters of that kind, the words are used in their ordinary accepted sense.

The Court: We will assume that there is evidence that coca means coca leaf, and that cola means cola nut. Now assuming that, although there is some contradictory proof, what do you say the average man would understand by that, what part of the coca would he understand was in there and what would he understand was the part of the extract of coca—what is the Government's theory on that as to what that means?

Mr. Miller: Its theory is whether the ground or the powdered or dry is in there, that it contains some appreciable quantity of coca leaf, I don't mean after it is decocainized.

The Court: What do you mean, the coca leaf in its physical substance or in its chemical action?

Mr. Miller: Its chemical action.

The Court: Then it must contain an appreciable degree of some chemical or physiological effect derived from the coca?

Mr. Miller: Yes.

The Court: And you say that an ordinary man seeing the label "coca" would understand from that that the product contained some characteristic quality that was derived from the coca leaf.

Mr. Miller: I say that, but I do not agree with counsel who spoke yesterday and referred to soda water. That is not a matter of interstate commerce. I do not agree this has to be tested by the ordinary retail purchaser or his understanding for this reason; these kegs and barrels seized were not shipped to the ordinary customer or the ordinary customer. He didn't buy them. They were shipped bulk. They had on them a pictorial design. You take the label, you take the name, and you take the picture. You take the photograph of the whole and you take the man to whom it is shipped, and that is what is to

determine in this case.

The Court: Then you mean the test for the jury is what the Coca-Cola Bottling Works understood by the word "Coca-Cola?"

Mr. Miller: No, sir; I don't think that. I think the test for the jury would be the test for the dictionary, the chemical test your Honor put, the test as shown by the chemist as to what the chemical composition was.

The Court: I am not getting at the determining of the question of fact. I am trying to get at what your theory is as to what the word coca means. In your libel you say it was representative of the presence in said fluid product of the substance coca and cola. That would seem to me that the coca leaf was physically present.

Mr. Miller: It would be representative of the coca in its original and dried state.

The Court: Now, you do not say that. You do not say that coca would indicate to the purchaser whether of the gallon jug or at the fountain, that there is any coca in there in its dried state, and he would not understand that, but he would understand there is some essential principle derived from the coca.

Mr. Miller: If it was in its original state, there must be some essential principle in it when a name is taken—

The Court: You don't contend that it means that there was any ground portion of the coca leaf?

Mr. Miller: No, sir; the decocainized as it is—I don't mean that—

The Court: I am not talking about the decocainized, but do you contend that there is some of the actual original substance in its original shape in the compound?

Mr. Miller: Yes, some of the original substance.

The Court: But I say that in its original shape. There is a difference there.

Mr. Miller: But not as to the active principle. The substance, the original substance, whether it comes in its original shape or whether it goes through a process is there, what is ordinarily meant by coca is the way coca is defined.

The Court: Your libel would seem to imply that there is some representation that there is some actual cola leaf in there. Now I understand you do not claim that but you say there is the essential principle derived from the coca leaf in there.

Mr. Miller: That is what I think the libel undertakes to say. I say there were some of the substances known as coca and cola.

The Court: Some of the coca substances were contained

in it, but what is contained is the essential principle derived from the product. I just want to get at exactly how you construe these words.

Mr. Miller: I think any of the properties of the coca leaf in an appreciable quantity and of desirable quality are the determinative factors and it don't make any difference whether in its original state or in a chemical state, but as applied in this case, I think chemically speaking, is to be given the consideration, because it is not claimed by anybody that you cannot take the leaf and treat so that it don't have any properties at all, and it would not have any chemical or physiological action at all in that shape.

The Court: Then I understand that the use of the word "coca" is a representation that there is in this compound of Coca-Cola some quality of an appreciable degree that is derived from the coca leaf.

Mr. Miller: That is our contention better than I could perhaps state it, but that is the way I wanted to state it.

The Court: I am not trying to improve on your statements, but I am just trying to get at your idea.

Mr. Miller: We think that the use of the word "coca" implies that the mixture contains a property or quality of that substance. If it did not, I do not know the occasion for using it at all. I cannot conceive what a man used it for originally if he did not think it applied to that, because the Courts have uniformily in interpreting matters of this kind, given words which are the names of substances, their ordinary significance, and have written that into them when they come to construe what was or was not proper for a trade name.

The Court: Now, suppose for the purpose of illustration merely, that the substance coca is a foreign character and so little known that the name "coca" is only known to a few men of science, and a few men engaged in the business of selling it, and that the average man don't know anything about the word "coca" but regards it merely as a fanciful name and does not get any indication of its meaning, it that in violation of law?

Mr. Miller: I don't believe that is a fair test under this law. While I am not at all apprehensive as to what the average man does understand by the use of the term, at the same time I think that would be a narrow construction.

The Court: You have used an extract from the opinion of the Attorney General in which he said the name should be taken which would convey to the fair mind of an average man, even though it might be misleading to a man

of science.

Mr. Miller: But that was with reference to an article unlike this.

The Court: It was a general statement as to what should be done under the Act and the purpose of the Act. It was in a whisky case.

Mr. Miller: That was a case where there was consumption by a purchaser over the counter. This is a case where there was a seizure made of certain barrels and kegs with this design on it, and the ordinary purchaser over the counter does not get the pictorial design or label at all.

The Court: Have not the bottles the label on them?

Mr. Miller: The bottles have been put in evidence.

The Court: The soda water fountain purchaser may not see the label but the purchaser of the bottle would.

Mr. Sizer:: No, the bottle just has the word Coca-Cola, not the picture.

Mr. Miller: Now, as to whether they can hyphenate the name and make it any better than the words, I want to call your attention to —

The Court: There are several food and drug decisions in which they say the test would be the knowledge of the average man, that they wanted to protect the consumer and not simply the man of science.

Mr. Miller: That is quite true.

The Court: Do you agree to that?

Mr. Miller: I say that those cases, insofar as I have read them, of course I have not read them all,— that in those cases there is a radical difference, and one of the differences I have states is the characteristic label —

The Court: I am not asking any question as to the label, but whether or not in testing the question of whether the name is on the label is misleading, it is to be tested by the knowledge of the average man or the knowledge of scientific men.

Mr. Miller: I don't think either is to be excluded.

The Court: The Courts have decided that scientists would be included among the average man, as he is a part of the average man, that he would have to be included in that designation, and would not the ultimate test be the knowledge of the average man?

Mr. Miller: I think the test would be the knowledge of the average man, assuming that he has before him the label and that his attention was drawn to the design and everything just as it appears here.

The Court: Yes.

Mr. Miller: Yes, I think that is true.

The Court: Now, to carry that further suppose the average man didn't know anything about the substance coca at all, then if he didn't know anything about it, can it in any sense be misleading.

Mr. Miller: If he don't know anything about it and if he had that design before him and still didn't know anything about, then it probably would not be misleading. If that design were put on everything he sold, if that leaf and that nut and that name was put on everything sold to the customer, and it appeared that the customer did not know anything about it, it might not be misleading.

The Court: If a man of average intelligence would not know anything about it and would not draw any inference from either the name or the picture because of his lack of knowledge about either, then it would not be misleading.

Mr. Miller: I am not prepared to go that far or to say that the Government goes that far, but I certainly would not be afraid to try this case on that proposition.

The Court: I want to find out how far you go. If this case goes to the jury, I have to instruct the jury.

Mr. Miller: Our contention is in the first place that the man of average intelligence combines that everyday knowledge with the knowledge of the scientist—

The Court: There is no doubt about that, that in arriving at the knowledge of the average man, you would have to assume the scientist so far as they are an appreciable portion of the community.

Mr. Miller: Now, I think it is true that some of the decisions have gone to the extent of not even considering the distinction your Honor draws between the scientific and the every-day man, but it does seem to me that either the Court's contention was not drawn to the point under consideration, or else the decisions are not sound and logical, because we can not presume that all the citizenship is ignorant and that they do not possess to a certain degree, some scientific knowledge. Now I think a fair position for the Government in this case is that it is what the average purchaser of this product sealed as it was when it was seized in this case, labeled as it was when it was when it was seized in this case, would be as to what composed it.

The Court: Now, Mr. Sizer, do you agree that that is fair?

Mr. Sizer: Well, I think that may be true, but I submit that we cannot take one of the elements in this name alone and say that the test as to whether the article was misbranded or not would depend on the meaning attached to that particular name because we say we have

the right to take the names of anything in common use.

The Court: I don't mean to get into that question, but it is a question of who has knowledge. In considering that a thing is misleading, it implies something is misleading. Now, who does that mean?

Mr. Sizer: The man to whom it was offered and who bought it.

The Court: The ordinary purchaser?

Mr. Sizer: And that question is to be determined with reference to the state of knowledge at the time this product was put on the market.

The Court: Now that gets into another question. I think both of you are practically agreed that the question is as to the effect on the mind of the average customer including everybody.

Mr. Miller: I don't think that is the fair purport of what I said. I said the average purchaser of the product as it was when it was labeled and seized in this case. Of course, you will run across a few who don't know anything about it at all. But I am speaking of the man who buys it as the product was put up in packages at the time it was seized.

The Court: Then there is no material difference on that subject. Some of these questions I am putting are not directed merely to the motion for a peremptory, but to get your views on the law if I should ultimately overrule the motion.

Mr. Miller: Now, upon the question of the hyphenated name, we have an adjudicated case from New York. It is from the State Court, but it is a positive adjudication. If your Honor cares to hear from that, I will read it.

The Court: I shall be glad to have a memorandum of those authorities, although as I said with reference to the question of law, if we could settle on that label, it passes beyond the domain of law and is for the jury, but I should be glad to have those authorities in the event I do overrule the motion as bearing on the charge.

Mr. Sizer: What is the name of that case, Mr. Miller?

Mr. Miller: Caswell vs. Davis, 58 New York.

Mr. Sizer: And that is distinguished in Keasby vs. Bromo Caffeine Company.

Mr. Miller: If it is not desired to hear from me on that question, I will pass.

The Court: As you are going to be replied to, you can refer to it.

Mr. Miller: Here is what they say in that case:

> "Nor does the coupling together in a new combination of words which before that had been used

apart and had entered into the common or scientific vocabulary give a right to the exclusive use of such combination where it is indicative not of origin, maker, use and ownership alone but also of quality and other characteristics."

Here we say it is indicative of the quality and other characteristics.

Then I want to call the attention to the opinion of the Attorney General in the Whisky case as to what is a distinctive name where he says it must be such as to clearly distinguish the article from all other things.

The Court: Do you contend that this goes to show that the substance Coca-Cola is not the only substance known by that name and that there is another substance sold under that name?

Mr. Miller: If this name implies anything, it implies as Mapleine did, that it is an extract of coca.

The Court: But that gets into another question. I am asking as to a question of fact. If the evidence shows that there is any other article like this that has been known under this name and this is not the article sold under that name, does the public know this article under this name or is there any dispute as to that?

Mr. Miller: I don't dispute the fact that this substance has uniformly been sold as Coca-Cola, barring the change in formula.

The Court: Take the last ten years, that may be different from what it was known before, but it has not been different in that time.

Mr. Miller: That change was in the last ten years, it was made about seven years ago.

The Court: About nine years ago.

Mr. Miller: 1904.

The Court: No, 1902.

Mr. Miller: I appeal to the record and to Dr. Schaefer's testimony on that point.

The Court: Well, say it was seven years.

Mr. Miller: Now, I don't think it can be said that coca and cola whether put together or hyphenated, distinguishes this product from all other compounds of coca and cola. If it means anything, it means a compound of the two. Now, can it be said in the language of the attorney general, that it distinguishes this from all other things, namely, a compound of coca and cola. How would express a mixture of coca and cola except by the word coca-cola?

The Court: Does it not indicate a specific combination distinguished from any known combination of coca and

cola and from every other compound of coca and cola?

Mr. Miller: It distinguishes everything on the market, but it does not distinguish it from anything that anybody wants to make up. It conveys the idea of those substances.

The Court: We are not talking about conveying an idea but about the distinctive name. Has not this combination for seven years been sold to the public under the name of Coca-Cola and as representing an article distinguished from any other combination of coca and cola or any other combination.

Mr. Miller: I don't think it distinguishes this mixture from any other combination of coca-cola.

The Court: There is no other combination of coca-cola—at least the proof does not show it.

Mr. Miller: Quite true, but that is just exactly one of the things the trade-mark law does not intend to precent and interfere with, and that is if there be a combination or if a man make up one by taking ordinary substances and putting them together so as to make their name express their qualities, one man cannot enjoy a monopoly on that.

The Court: It is not a question of whether a trade-mark could be gotten, but it is a question of fact, whether this combination is distinctively known to the public under that name.

Mr. Miller: Inasmuch as there is no proof on the various other things sold and as it is proof that there is a coca extract and a cola extract on the market, it must be that a combination of the two is easily produced by mixing.

The Court: I think some of the druggists in Knoxville say there was no other article under that name.

Mr. Miller: And that is as far as they know.

The Court: It has not been contradicted in any way.

Mr. Miller: Now proceeding further with the Attorney General's opinion, he says: "But one which has by common use come to mean a substance clearly distinguishable from everything else." Can it be said that this substance is clearly distinguishable from everything else, every substance and every ingredient that enters into this name at all is part of another substance.

The Court: But the combination as a whole, is distinguishable from everything else, and produces effects distinguishable from every other compound.

Mr. Miller: It is if we deny to everybody else the right to compound it.

The Court: This has acquired in the public mind a fixed idea as having certain definite effects that no other

article has.

Mr. Miller: It might not be argued that a man would not have a right to make coca and cola and mix them together and sell it as a combination of the two.

The Court: Certainly not.

Mr. Miller: Now, borrowing Judge Sanborn's phraseology—he says he thinks that what is a true test as to what people would understand by a word from the situation, including the statements on the label and anything else—

The Court: That is in reference to the label—

Mr. Miller: Yes. Now, having that label, taking that name—I cannot see how it can be seriously argued that the average purchaser would distinguish this product from any other combination of coca and cola that could be made, or how it can be said that this name which merely couples two substances, coca and cola, becomes distinctive as against those substances or in admixture of those substances. It might be that I am in error about that.

Now, if I understand the contention of the claimant it is that they may use this name provided it is shown to be distinctive name although the two words are the two names of two known substances, and it was said yesterday I believe at the bar that if they had registered a trademark and had acquired a distinctive name at the time this law took effect, they continued to use this name, notwithstanding it was fraudulent and deceived the public—

The Court: Even if it was misleading, if the name was a distinctive name.

Mr. Miller: That was their argument at the bar. And we understand right there is where the line is drawn between the Government and the claimant in this respect.

The Court: There is this to be said on that argument—that would not even,—if it protected the name—not protect any deceptive statement on the pictorial design.

Mr. Miller: I think that matter of pictorial design enters materially into the case.

The Court: The pictorial design is indicative of the distinctive name—

Mr. Miller: And the use of the label and of the pictorial design in connection with the words together to explain the words, to give them their true understanding and meaning. Now, if I understand Judge Sanborn's ruling at all, it is that a name which is within itself false or misleading and I say again if Coca-Cola—that it is made up of the combination of the words coca and cola. Now, if they be false and misleading and that name does not represent the ingredients of the substance contained in the mixture, it cannot be a distinctive name, cannot have a

distinctive name which hinges on fraud and deception, and this law was not intended to protect that. I think that this law like the trade-mark law was drawn for the purpose of protecting the people and for giving to the public knowledge of what they are getting when they go to purchase anything, and to say that a man because he has been in business for a certain length of time can make a design for his distinguished name which upon its face is fraud is to my mind inconsistent with this law because such is not the policy of the law.

The Court: Judge Sandborn's opinion does seem to imply that.

Mr. Miller: And in so far as the trade-mark goes they certainly bear that out—they hold that a name which is misleading and which is deceptive cannot be made a basis for an injunction at all when you come into court.

The Court: Well, that is on a different proposition—and is only on analogy.

Mr. Miller: That rests principally on the theory that they must come with clean hands.

The Court: But as to distinctive name—

Mr. Miller: In that same connection, if your Honor please, when Congress came to protect the distinctive name it certainly did not mean a distinctive name which was a cloak for a fraud, and under which people could sell poison or anything else because if that be true they could sell poison, it don't make any difference what, all sorts of poison under this distinctive name if the claimant's contention is sound, and hence I think that does not admit of serious thought, when you come to consider the intention of the law and as I said at the beginning—

The Court: In that view of it, first sub-section four under section eight in reference to the false statement, it is said that if the article does not contain any added poisonous or deleterious ingredient it cannot be deemed adulterated or misbranded in case it is sold under its distinctive name. Now, there is no exception there with reference to whether that distinctive name is false or misleading. It says if it is sold under its distinctive name it shall not be deemed to be misbranded or adulterated. Can you say then if it is sold under a distinctive name that that distinctive name would protect it?

Mr. Miller: In addition to being a reflection on the intelligence of the law-making body, it would be antagonistic to the very question of the law itself.

The Court: It seems that there is a direct conflict in the language.

Mr. Miller: When you read it, you have read it from

the four corners and harmonize it, if we can, that is the rule of interpretation, and in doing this I do not think when we take all these sections together that they harmonize as a whole—

The Court: There is nothing to harmonize, the constructions is a specific statement and says that it shall not be misbranded or sold under a distinctive name.

Mr. Miller: But that is upon the assumption it contains first no poison or deleterious ingredient.

The Court: Now, as to the question of misbranding. We are only talking about the question of misbranding now.

Mr. Miller: Yes.

The Court: Using it and selling it—not in imitation of anything, and it is accompanied by the name of the place where it is manufactured.

Mr. Miller: It is under the distinctive name of other articles.

The Court: Yes.

Mr. Miller: We contend that if it is the name of another article—

The Court: Assuming that it complies with the condition, now, in the first sub-section of section four or the first clause of sub-section four of section eight—that it complies with everything stated there in reference to the distinctive name, how can it be deemed to be misbranded under the specific language of congress, even if it is false—

Mr. Miller: It can only be misbranded if every ingredient that goes into it is an added ingredient.

The Court: That would not make it misbranded—

Mr. Miller: That would materially influence the misbranding of it because they happen to show three things.

The Court: It might have an added deleterious ingredient, but I see the force of your point, it might prevent it from getting the benefit of the exception—But assume it has no added deleterious ingredient.

Mr. Miller: If it has none, why, of course there is no question made about it.

The Court: Then you can see that if it has no added deleterious ingredient and has a distinctive name under sub-section four, then it is protected from the charge of misbranding even though that statement in name misleads.

Mr. Miller: No. I submit that the very doctrine of distinctive name, I do not believe it means to protect anything other than a truthful distinctive name.

The Court: Then what it means by saying it shall not

be misbranded if sold under a distinctive name—it never could be misbranded if it had a distinctive name that was truthful, it never could be.

Mr. Miller: Every distinctive name does not refer to substances—they refer to other things. It might refer to a man's name. It might include a man's name. It might include a great many things besides substances and not l misbranded, but when it comes down to a substance it has to speak the truth because the public has to have knowledge of what drugs and foods they are getting.

The Court: Do you mean to say that it would not protect against the charge of misbranding even if it does not contain an added deleterious ingredient by the doctrine of distinctive name because as I understand your position it is that the words "distinctive name" necessarilly exclude the name which is false.

Mr. Miller: If you base that statement on Judge Sanborn's ruling—

The Court: He seems to imply that—if that is based on the doctrine of distinctive name—because the word "distinctive name" implies true name—it would have no application to the misrepresentations contained on the label, or the pictures then would be protected because—if the name is true, if the name is not misleading, then it would be protected, if it has acquired a distinctive name which is not false—

Mr. Miller: If I understand—I did not follow your Honor.

The Court: I understood you mean to say that in order to avoid the apparent inconsistency of the language of these two sections, that is, the proviso and the clause that follows it—we are to define "distinctive name" as meaning only a true distinctive name.

Mr. Miller: That is one that is not found in there—

The Court: If you are right about that, that would mean a product which was misbranded by having a distinctive name—from being protected simply because it was sold under a trade-name— and a trade-name not being distinctive name, that would protect it if—

Mr. Miller: Well—

The Court: That applies in so far as an objection is made to the name, but if the misbranding consists of the label, a pictorial design, then the same article would be protected by having a distinctive name where it really had a true distinctive name.

Mr. Miller: Well, your Honor—

The Court: Well, anything that is misleading about the name, and that name had become a trade-name or a

distinctive name, it would protect that article from a charge of misbranding by reason of a false pictorial design on it because it says it shall not be deemed to be adulterated or misbranded where it is sold under a distinctive name, and it contains no added deleterious ingredient.

Mr. Miller: I do not see anything in that question that would prevent a proceeding against it if it had a false label attached to it.

The Court: It should not be construed to that extent but that would be the literal meaning of those words.

Mr. Miller: I understand that the label and distinctive name features and added deleterious ingredient feature are largely differentiated by this Act.

The Court: Well, in the very section—Clause four which refers to the label, it says that the article shall not be deemed misbranded and a misbranded article which has a false label, provided it contains no added deleterious substance and provided that it is sold under a distinctive name and that would seem to imply that you could sell under a distinctive name a product—

Mr. Miller: If the label show or bear any statement or device which is false or misleading in any particular. I did not see anything there that protects the false or misleading label at all. It seems to me that instead of that—it is forbidden.

The Court: You have not read the provision—

Mr. Miller: Now, the following provision: "Provided that an article of food which does not contain any poisonous or deleterious ingredient shall not be deemed to be adulterated or misbranded." Now, first, in the case of an article of food under its own distinctive name, now, anything offered for sale under a distinctive name or any article if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced."

It does seem to me that that would not follow, that a statute which provided a man might have a false label attached and at the same time that that would be a protection for his false and misleading name—

The Court: I did not make myself clear. That it was a correct name but only misbranded or printed with the label otherwise, a pictorial design. However, that is not very important.

Mr. Miller: Just one thought on that as to the selection of the name—New York against the—a New York case that I have here, of the People against Butler, 118 N. Y. Supp., and the article involved there was vanilla—

under a distinctive name. Their Act contains an added ingredient, Peerless Extract of Vanilla—but the Court observed it could not escape the charge of misbranding by selling a spurious article as a genuine article.

Now, there are genuine articles named coca and cola, and I submit because this claimant might have seen fit to put the words together—if there is no appreciable quantity of either in there, they could not escape the charge that it was misbranded, applying the name of a genuine article to a spurious article.

I think, if your Honor please, that is about all except what I had to say on the trade-mark law and I understand your Honor does not care to hear from me on that, and if so, that is all I care to say.

The Court: I would like to hear from you on another question that it may be necessary for me to submit the case to the jury on, on this alleged coloring or concealing matter.

Mr. Miller: We think that the evidence shows—

The Court: I just want to get your theory about it.

Mr. Miller: Dr. Kebler and Mr. Lynch and Dr. Leroy's statement—

The Court: I do not care as to the testimony; I wanted your theory.

Mr. Miller: On the ground first that it was distinctly proven by these witnesses that certain sanitary conditions existed, and, second, it was shown as to one batch of this mixture which was analyzed carefully or tested, that certain things were contained in it which violated one provision of this Act, and your Honor is more familiar with it than I am. It was sub-section four, and further, there is proof by Dr. Kebler that the adding of the coloring matter would stain or coat or conceal these subtsances so that these remnants—

The Court: What substances are you talking about?

Mr. Miller: We will take germs and the substances that Dr. Leroy said probably would be there—and we can take this and reasonably infer from his statement—

The Court: Did Dr. Kebler say that the presence of coloring matter would conceal germs? Did he say that the presence of caramel would keep you from finding a microbe?

Mr. Miller: No. He said this substance contained coloring matter, that at first it was of an amber color and that it was then added to so that it would be made a dark color, and they were distinctly asked on the point as to whether or not these conditions would serve in any manner to conceal the presence of foreign matter.

The Court: Now, you have proven actually that there are no inferior elements contained in it except sawdust and insects, or whatever it was,—does the Government insist that the caramel would conceal that at all?

Mr. Miller: I do not know that it would be limited to caramel, but burnt sugar, I think really does.

The Court: Is there anything in there to conceal it—it is perfectly obvious that coloring has no effect on it.

Mr. Miller: I can only state what the proof was.

The Court: How would the coloring matter prevent anybody from seeing an insect or the sawdust that was in it?

Mr. Miller: For the same reason that I could see it if it was in a bucket of water and could not see it if it was at the bottom of a gallon of molasses.

The Court: But the Coca-Cola syrup, anybody could see it.

Mr. Miller: Well, your Honor saw the color of that syrup—there was some of it shown around here. Before this coloring matter was put in it, it was of a light amber and you could hold it up before the light and it was a clear substance; and then afterwards it was colored.

The Court: That only referred to one keg.

Mr. Miller: Let us see about that point. It was picked out or taken out of the seized goods, as this record shows, and was sent to the Department. That is the only one we got. The proof is that the whole of these packages were made up at the same factory and under like conditions.

Now, I think it is fairly inferrable that whatever that one contained the others contained. Of course, as to what was in that other keg we have not shown but they have not shown anything to the contrary.

The Court: I do not think that the Government by proving that sawdust in that keg, can draw any inference that the other keg contained any sawdust.

Mr. Miller: The Act, of course, as your Honor knows, provides that the claimant can interpose and give bond and take this whenever it likes—it was only by special order of court that one keg was taken. We got one keg and analyzed it, we did not get any other.

The Court: You could have had samples.

Mr. Miller: Yes, but it is shown how these foreign substances were detected; that is, by filtering paper and letting it get down to the bottom, we could not do that in all cases.

The Court: The claimant might come in and give bond and take the things away before the things could have

been examined in court.

Mr. Miller: Yes, before they are examined in court, but they did not—of course, I am not finding any fault with what somebody else did, but on this examination of this one keg these things were found and it does seem to me that it is fairly inferrable, having been made under like conditions and everything else as to strainers, that whatever existed in this keg might exist in all the kegs.

The Court: I think, Mr. Miller, that if an article is colored with caramel, because it is a pleasing color and attractive color, that it is no intention to conceal any inferiority, and then if in case of putting it up and before it is sold sawdust gets into it, assuming that caramel is so thick you cannot see it, that that kind of a case comes within the Act.

Mr. Miller: If it should be found that this was put up in a proper sanitary way and if it was bottled or packed up and sent out and put in kegs and insects dropped into it accidentally, I do not think that would make a case against the company. On the other hand, I do not think the Government has to show any intention on the part of The Coca-Cola Company to put the particular coloring matter in there for the purpose of concealing any inferiority that might have existed. I think if they put the coloring matter in the article and under the language of the statute, if the result of it was and if the objection of it was to conceal it, why, then—

The Court: "Whereby" is the word.

Mr. Miller: That means, of course, the fact—the word "whereby" is to do certain things, as I construe it—under this proof it seems to me that these kegs all being made in like sanitary condition and the coloring matter being put in, that company by the aid of a proper bacteriologist might have known this condition which might result that certain foreign substances—

The Court: There is no evidence of any bacteria—it is a question of sawdust and insects, a thing that anybody can detect.

Mr. Miller: The bacteriologist showed, when the hypothetical question was put to him, being given the sanitary condition that under conditions like those there, certain elements or certain germs—that those germs might exist.

The Court: I do not think the bacteriologist testified that there would be any condition under which germs,—the presence of which would be obscured or which would be concealed by the caramel syrup.

Mr. Miller: No, but he said likely—

The Court: Well, suppose they are, unless the caramel

syrup would prevent or conceal the germs, it does not come under this subject.

Mr. Miller: Well, we could only make out a case by piecemeal. We did not know anything about the other things. Another witness showed that the effect of adding this coloring substance would be to conceal the presence of them.

The Court: I understood you to say a moment ago that there is nothing said about concealing germs or microbes.

Mr. Miller: My recollection is that Dr. Kebler or Dr. Fuller said—

The Court: That it would conceal them?

Mr. Miller: Render them less noticeable or less observable, that is the very point when you have got a sugar liquid, make a dark liquid; you cannot penetrate it with the eye at all.

The Court: Well, just let me have the evidence on that point.

Mr. Miller: Here is a sort of an extract from it, prepared hastily. Dr. Leroy's statement is in there.

The Court: All right.

Mr. Miller: One more thought.

The Court: Does the Government insist that there is any proof that this product was sold under a distinctive name of any other product or extract of it?

Mr. Miller: It is insisted that it is sold under the distinctive names of coca and cola.

The Court: But that is not any other product. It is not an imitation of the coca leaf or the cola nut. Nobody buys it or would be deceived in thinking in buying it that they were buying coca leaf and cola nut.

Mr. Miller: That gets back to the question of what character of purchasers we are going to consider.

The Court: Well, no man would buy it thinking he was buying coca leaves or cola nuts—he might think he was buying an extract of it.

Mr. Miller: Yes.

The Court: How is this an imitation of the coca leaf and cola nut?

Mr. Miller: I did not get that.

The Court: Do you say that it is an imitation of an extract of coca leaf and cola nut?

Mr. Miller: We say it is sold under those names—

The Court: You don't say that—

Mr. Miller: Let me read the language here—

The Court: If you made the charge that it was sold in imitation of an extract of coca and cola nut, you might have something to predicate that argument on.

Mr. Miller: I will state further that the product is an imitation of articles and substances known as coca and cola.

The Court: Well, your whole theory has been that coca means the coca leaf and cola means the cola nut.

Mr. Miller: Some product of them.

The Court: You say it is sold in imitation of these substances, the coca leaf and the cola nut. It obviously seems to me it is not an imitation of the coca leaf and cola nut.

Mr. Miller: We have shown that they possess certain distinctive properties—

The Court: You do not allege that they are imitation of any products or of any other substances derived from the coca—you do not prove that is an imitation of any other substances derived from the coca leaf and the cola nut.

Mr. Miller: We do prove this, that there are such substances as coca and cola and we show what they consist of, and we also show that they are admitted into this country.

The Court: But you do not say that any article that is derived from the coca or the cola, that this article imitates in any way.

Mr. Miller: That depends on whether the name Coca-Cola does not imply that it is a mixture of the product of the product of the two—the essentials of the two, coca and cola.

The Court: You do not say that there is any article of commerce known as, to wit: Coca and Cola.

Mr. Miller: We proved that it was, and it is in evidence—

The Court: That any article is known as coca and cola?

Mr. Miller: You mean the combination of the two?

The Court: Or that this is an imitation of the extract of coca and cola, or that it was sold in imitation of it.

Mr. Miller: I do not think it is sold in imitation of it, I do not believe that is true.

The Court: You do not allege it is sold in imitation of any product from it and do not prove that it has any extract, or that there is any extract known by the name of coca and cola. The question of imitation is different than the question of consistency. Without other argument my opinion is quite definite on that point.

Mr. Miller: We say that it was offered under the distinctive names of two substances, and that is a distinct infraction of the Act. There are certainly two such substances as coca and cola and the Act absolutely says derivatives—

The Court: The Act provides that it prevents it from being sold under the name of any other article, but not in combination with any other two articles.

Mr. Miller: A thought right there. If you fobid the sale of it under the name of one article, you ought not to be permitted to sell it under the name of two, simply by using the two names coca and cola. Of course, passing from that and coming to that alleged sign with the coca leaves and the cola nuts on it—it is suggestive of the presence of coca and cola in it. We do not say coca leaves and cola nuts—

The Court: You have not offered any proof to show that coca means anything but coca leaves and cola means anything but cola nuts—

Mr. Miller: Our case rests on the proposition that these articles have distinctive properties.

The Court: Yes, coca is a distinctive thing and cola is a distinctive thing.

Mr. Miller: We say that the representation on this design suggests that these substances are in this compound and we say they are not there.

The Court: As I have stated, if they are protected by a distinctive name, if they have distinctive names, why, I think that is a question for the jury.

Mr. Miller: I think that is all.

The Court: In short, it seems to me the question as to whether this case should go to the jury at all outside of the question of the sawdust which I do not regard as very material in this law suit, that that question hinges on the question of fact as to distinctive name and the meaning of the word "added."

Mr. Miller: Those are the two things that I tried to present today.

The Court: It seems to lead to that. They are questions that are very difficult.

Mr. Sizer: Now, in respect to the added ingredient question, may it please your Honor, Mr. Miller assumed and I think your Honor was rather inclined to agree with him that there was nothing in the Act to indicate that the word "added" was intended to apply to compounds.

The Court: It does—

Mr. Sizer: You said there was nothing to exclude its application to compounds?

The Court: I said there was nothing in the Act to indicate that the word "added" was used in a different sense as to natural articles and compound.

Mr. Sizer: On the contrary, there are places in the Act in which it is clearly indicated that the word "added"

does apply to compounds as well as to simple substances. I refer to the provision that Mr. Miller talked about a while ago. (Reading:) "If the package containing it or its label shall bear any statement, design or device regarding the ingredients or the substance contained therein which statement, design or device shall be false or misleading in any particular. Provided that an article of food which does not contain any added poisonous or deleterious ingredient shall not be deemed to be adulterated or misbranded."

And, again: "In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names and not an imitation of or offered for sale under the distinctive name of another article."

And: "Provided that the term 'blend' as used herein shall be construed to mean a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only."

And, further: "And further provided that nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredients to disclose their trade formulas except in so far as the provision of this Act may require," etc.

Congress comes along and uses the word "added" as applied to food products. It does not say that the construction of General Cox and Mr. Miller's construction, that the word "added" is superfluous—they should have said that the manufacturer of a proprietary food which does not contain unwholesome ingredients shall state his formula—they come along and use the word in the connection in which it is used—in which it appears: "Manufacturers of proprietary foods which contain no unwholesome added ingredients to disclose their formulas."

I think the full discussion in Congress and before the committee shows that this word "added" was intended to refer to prohibiting the putting in of preservatives and coloring matter, that that is what it was particularly aimed at, benzoate of soda, and nitrate in flour, and Marsh's yellow in macaroni, things that were wholly foreign to food products in which they were put and put in for preservatives and coloring matter. Things which would mislead a man into thinking that he was getting something that he did not want to get, constituting a fraud or deception.

The Court: Now, suppose that the word Coca-Cola did mean, as Mr. Miller insists, a combination of coca and cola,

caffeine added, it would be misleading.

Mr. Sizer: But, your Honor, if we sell a combination of coca and cola—sell a food product,—for instance, if we sell a food product to which we give the arbitrary name, Coca-Cola, and if that food product has always had a certain proportion of caffeine in it, it cannot be considered an adulteration in that product. Mr. Miller's whole argument on the misbranding feature is based on the assumption that you cannot use two well-known names and apply them to any product unless the product to which you apply them contains the constituent elements of the two substances whose names go to make up the compound name. That is not true, but as a matter of fact—

The Court: His contention was they did not contain the constituent elements—

Mr. Sizer: A man could not get a trade-mark name that is descriptive of the constituents of his compound for the manifest reason that every man is not entitled to use words that describe his compound. If a man makes a compound of various ingredients and simply calls it by the name of those ingredients, that is not a distinctive name and cannot possibly be—because any other man who takes those same ingredients and puts them in a different form is entitled to use that same distinctive name.

Now, we never have called this product coca and cola.

The Court: The word "Trade-mark"—in that connection it shows it is not a descriptive name.

Mr. Sizer: Certainly.

The Court: A descriptive name could not be trade-marked.

Mr. Sizer: Yes, the very fact that it is trade-marked shows that it could not have been descriptive of the ingredients entering into it.

The Court: Did the word "Trade-mark" appear on all the labels in this case?

Mr. Sizer: Yes.

The Court: I thought that on one of the trade-marks it did not show the word "trade-mark."

Mr. Sizer: I think the older ones, the trade-mark generally appears on the tail of the letter "C," but the owner does not confine himself to any particular form, but I believe in every single sample of the name offered in evidence that the word "trade-mark" appears on the tail of the C. I know it does appear in the second trade-mark.

The Court: Does it appear on the little tin labels that are on the bottles?

Mr. Sizer: I have one in my pocket.

Mr. Miller: But that one was not put in evidence.

Mr. Sizer: No, but they are all the same, the word "Trade-mark" is underneath.

The Court: That is because it is too small to write it in?

Mr. Sizer: I think your Honor will find without exception that it has been used. Now, here is our proposition: We never did say this was coca and cola, it is Coca-Cola, hyphenated, a compound name, a compound applied to a new substance that these people themselves invented. (Reading:) "Where a manufacturer has invented a new name or new word or new words in common use which he has applied for the first time to his own manufacture or to an article manufactured by him to distinguish it from those manufactured and sold by others and the name so adopted is not generic or descriptive of the article, it is not used to denote the grade or quality but is arbitrary or fanciful, he is entitled to be protected in the use of the name or trade-mark although it becomes so known or becomes the name of the genuine article."

Now, the name became so common, such a common name that a man went on and used that and it was held that no man was entitled to use it and the court held that others were not entitled to use the name that this man first had. Your Honor knows as a part of the general history of the country that at the time this product Coca-Cola was first made and this name was first used, practically no one knew anything about coca and cola, a substance about which we have had a great deal more to do since these people combined together the names of these two foreign shrubs which had never been associated in any way before, and applied that combined name to this food product which for the first time was made and put on the market.

Now, if it be true that since that time the names coca and cola have come to have some definite meaning—that could not defeat our right to the use of the combined name which we used long before these constituents, these substances coca and cola, came to be known as they are now.

I did want to say on that added ingredient this, with reference to what Mr. Mann said—that by the words "introduction into a food product"—"introduction" now, "into a food product"—that means the same as Congress meant by the word "added" ingredient.

In addition, he may have used the word "introduction," —addition to a food product of a deleterious and poisonous ingredient. That does not shed any further light on the Act.

The Court: The strong statement in favor of the Government's contention is that of Senator Heyburn, that is

the one that is in the way. That does seem that every ingredient of a compound must be regarded as an added ingredient.

Mr. Sizer: Yes, if that was so. The Act in its present form—it did not originate in the Senate. The Senate concurred in the House bill and certainly I submit that that cannot be read into the Act, something that is directly contradictory with express language, simply because Senator Heyburn in the Senate expressed an opinion that the Act did not mean what it said at all. You will notice in that same connection with respect to confections that the word "added" is not used at all.

The Court: The word "added" is not used.

Mr. Sizer: With respect to this distinctive name proposition—

The Court: What do you say to Mr. Miller's argument that a distinctive name can never be used in reference to a false name?

Mr. Sizer: As I stated a while ago, not only is that not true but the fact is that nearly every distinctive name is a false name, in that it is not descriptive of the ingredients. Take the man who first invented the pine apple; he gave to it the arbitrary name composed of two well-known food substances, but that was a new name applied to a new product. It is not descriptive of it.

Now, take cream of tartar; if there had been a pure food law when cream of tartar was first invented, it might have been declared misbranded and prosecuted for being misbranded because they called it something that it was not, but that name has been associated with that article so long that it is recognized and known.

The same is true of soda water and grape fruit.

The Court: You say that it was the intention of Congress when the name had been used for such a long time that the public knew what they were buying that the question of what the name originally meant was immaterial?

Mr. Sizer: Exactly, your Honor; no other construction could be put on this wording or language than an article that is known by its own distinctive name—why, because it is known by the public as that article and nobody is deceived by getting that article when he buys it by that name. No more than a man would be deceived if he did not get soda in a glass of soda water.

The Court: Would that not only protect it as against misbranding and so far as the name was concerned, but leave it open whether in addition to the name there were any false statements?

Mr. Sizer: No.

The Court: Take Coca-Cola; suppose that it now has a distinctive name of Coca-Cola. Now, is it subject to be proceeded against under this Act? Suppose tomorrow they should proceed and place on the label these words: "This is an extract of coca and cola," which is a distinct statement, if that should be made would they be protected from the false statement on the label because they had a distinctive name for Coca-Cola?

Mr. Sizer: Perhaps not; that would be a change in the name and an additional false statement.

The Court: No, no change in name, just keep the name Coca-Cola and keep everything in it as it is and put a false statement on the label—that distinctive name, can it be reasonable to infer that that would protect if anything except against such elements as may be contained in a name?

Mr. Sizer: Well, your Honor—

The Court: Would it be reasonable to say that it was intended to protect against the illustration that I have given?

Mr. Sizer: That might come under this proposition, that it appeared for sale under the distinctive name of some article.

The Court: Whether if I should conclude so far as the name is concerned that under the proof it has been shown such a distinctive name as to protect this article, whether I should still leave it to the jury as to the pictorial representation.

Mr. Sizer: I catch your Honor's suggestion as to this pictorial representation, it is just simply a picture that is descriptive, that would not be a misbranding under this provision of the Act.

Now, I was going to say there was a beverage sold by the name of "Poinsetta." As we all know, that is a big red flower; on the label is the picture of the poinsetta flower. Now, it is not contended there is anything on the poinsetta or that the picture of the flower does anything more than illustrate the name that the man has applied to this particular compound.

The Court: It is a picture.

Mr. Sizer: A picture of a flower. Now, on the keg, it has always been used on the kegs—I suppose they have always used kegs—the picture illustrating the name.

The Court: Like the shoemaker's sign.

Mr. Sizer: Yes. Like the picture of the arm and hammer on the soda.

The Court: I catch your illustration. If it gets to

that, I shall leave the question to the jury.

Mr. Sizer: Well, I believe, your Honor, that is about all I have to say and will leave the matter with the jury.

Thereupon the argument was ended on the motion for peremptory instruction, at the conclusion of which the Court stated:

The Court: Gentlemen, this is a very interesting question and there are very important questions in this law suit and I have certain impressions about it now, they are not convictions, however. I have been very much aided by argument of counsel. I do not want to decide the matter now; I want to think it over this afternoon and I will adjourn court until tomorrow morning. The law questions are so important.

Thereupon the Court at 12 o'clock M., adjourned until Thursday, April 6th, 1911, at 9 o'clock A. M.

CHATTANOOGA, TENNESSEE

THURSDAY, APRIL 6, 1911

NINE O'CLOCK A. M.

Court met in pursuant to adjournment.

Appearances: Same as before.

The Court: Gentlemen: In reference to this motion for peremptory instructions, I am not yet quite prepared to announce my conclusions and so far as this case is concerned we will take a recess until eleven o'clock. But before doing so, I wish to inquire of counsel in the case if there is any diversity of opinion as to this technical question: Suppose that I should be of opinion that the motion for peremptory instructions should be sustained as to certain of the charges contained in the libel, but not as to others, is there any difference of opinion that the proper practice would then be to sustain the motion to that extent and to submit those issues along with the other issues to the jury with peremptory instructions as to those issues and a general charge as to the others or should those issues, if any, upon which I should find that the motion for a peremptory instruction should be sustained be eliminated entirely and not submitted to the jury? I do not think it would make any material difference, but if counsel have any difference of opinion about it, I would like to hear from them. The result will apparently be the same in the end.

(Thereupon Court took a recess until 11 A. M.)

AFTER RECESS.

Court met pursuant to adjournment.

The Court: I have reached conclusions on the claimant's motion for peremptory instructions.

1. The chief question in this case arises under the allegations of the Government's libel that the food product Coca-Cola, which it seems to condemn, is adulterated in that it contains "an added ingredient, caffeine," which is alleged to be a poisonous and deleterious ingredient that may render such food product injurious to health.

Assuming, for the purpose of determining this motion, that if the caffeine, which is admittedly contained in the Coca-Cola in the proportion of about one and one-fifth grains to each fluid ounce of the syrup, is an "added" ingredient within the meaning of the Food and Drugs Act, there is such conflict in the evidence as to whether it is a deleterious ingredient which may cause injury to the health that the question of its qualities and effect should be submitted to the jury for determination, as a question of fact, and not of law, the preliminary question arises, whether upon the undisputed evidence in this case, it can be deemed an "added" ingredient to the Coca-Cola within the meaning of the Food and Drugs Act, so that its presence can in any event cause an adulteration of that article within the meaning of the Act.

The material provisions of the Act, in so far as they bear upon this question, are as follows;

By section 6 it is provided that the term "Food," as used therein, shall include all articles used for food, drink, confectionery or condiment by man or other animals, whether simple mixed or compound.

By section 7 it is provided that confectionery shall be deemed to be adulterated if it contain any "mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health," and that an article of food shall be deemed to be adulterated, "if it contain any *added* poisonous or other *added* deleterious ingredient which may render such article injurious to health."

By section 8 it is provided that an article of food shall be deemed to be misbranded "if the package containing it, or its label, shall bear any statement, design or device regarding the ingredients or the substances contained therein, which statement, design or device shall be false or misleading in any particular; provided, that an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases: First, in the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not an imitation of or offered

for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced, "and" provided, further, that nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome *added* ingredient to disclose their trade formulas, except in so far as the provisions of this act may require to secure freedom from adulteration or misbranding."

And by section 11, it is provided that if it shall appear to the Secretary of Agriculture upon examination of samples "that any article of food or drug offered to be imported into the United States is adulterated or misbranded within the meaning of this Act, or is otherwise dangerous to the health of the people of the United States," such article shall be refused admission.

In determining the meaning and effect of these provisions of the act, I have been greatly aided by the argument of counsel for both parties, who have clearly and forcibly stated their respective contentions, and who have conducted the case throughout with signal ability, learning and effectiveness.

Comparing then these several provisions of the act, so as to give each its reasonable and just meaning, consistently with each other, and in accordance with the general purpose of the Act, I am constrained to conclude that the use of the word "added" as applied to poisonous and deleterious ingredients in articles of food other than confectionery, in sections 7 and 8 of the Act, cannot be regarded as meaningless; and that, by contract with the provision in section 8 that "confectionery," which is usually an artificial compound, shall be deemed to be adulterated if it contain any "ingredient deleterious or detrimental to health," and with the provision in section 11 that admission may be refused to any food or drug offered to be imported into the United States if it be adulterated or misbranded within the meaning of the Act, or "otherwise dangerous to the health of the people of the United States," it was intended to provide by sections 7 and 8, that any articles of food manufactured and sold in this country in interstate commerce should not be deemed to be adulterated merely because they contained a poisonous or deleterious ingredient, except in the case of confectionery, but that all other articles of food, whether simple or compound, were not to be deemed to be adulterated on account of the presence of a poisonous or deleterious ingredient unless such ingredient was "added" to the article of food

in question, that is, was an ingredient foreign to its natural or normal constituency; and that this distinction applies by the specific provisions of section 8 to compound articles of food known under their own distinctive names not an imitation of, or offered for sale under the distinctive name of any other article and properly labeled as to the place of manufacture. Thus a natural article of food, for example, coffee—can not be deemed adulterated, even although the average cup contains a larger amount of caffeine than an ordinary drink of Coca-Cola, and even if caffeine may properly be regarded as a deleterious ingredient injurious to health, since such caffeine is clearly not an added ingredient to the coffee foreign to its composition, but is one of the essential ingredients naturally and normally entering into its composition. So an article of food which is not sold under a distinctive trade name, but under a well recognized name that has acquired a distinct meaning in general popular usage, as for example, sausage cannot be deemed adulterated within the meaning of the Act, however deleterious to health some of its normal ingredients may be, provided that as manufacturd and sold it does not contain any other poisonous or deleterious ingredients added to its normal and customary constituents. And so, likewise, I think it is clear from the provisions of the Act that a compound article of food which is manufactured and sold under its own distinctive name, and properly labeled with those qualities and effect the public has been familiar, and for which they see fit to buy it, is not to be deemed to be adulterated within the meaning of the Act, provided, that when manufactured and sold under this distinctive name it contains no poisonous or deleterious ingredients in addition to its normal and customary constituents as it has been habitually and regularly manufactured and sold to the public under such distinctive name; although, of course, if it were attempted to add to an article of food thus sold under its distinctive name another ingredient which it had not regularly and habitually contained under the distinctive name under which it had been sold to the public, and such added ingredient were poisonous or deleterious it would thereby become subject to condemnation under the provisions of the Act.

To hold otherwise would in my opinion render the word "added" as repeatedly used in the Act in connection with poisonous and deleterious ingredients, entirely meaningless, and would involve an irreconciliable contradiction in the clauses of the Act in which it is expressly provided that a mixture or compound known as an article of food under its own distinctive name not an imitation of or of-

fered for sale under the distinctive name of another article of food and not containing any "added" poisonous or deleterious ingredient shall not be deemed to be adulterated. The conclusion is to my mind unavoidable that by the use of this language Congress intended to provide that a compound article of food thus known labeled and sold under its own distinctive name, should be assimilated to a natural product and not be deemed to be adulterated whatever the character of its ingredients if it contained no ingredients other than those habitually and regularly entering into it as constituents under the form and with the characteristics with which it had acquired its distinctive name and become known to the public. In this case, as in the case of the natural food product, if the article is sold under the same distinctive name with the same constituents and with the addition of no other ingredients whatever the public in purchasing the article is not deceived — as it would be if an essential constituent ingredient were left out — but on the contrary, obtains exactly the article which it has been accustomed to buy under this distinctive name, and which possesses exactly the qualities and produces exactly the effect which renders it in the mind of the public a desirable article of consumption, without addition, change or adulteration. And which it is true that a purchaser of Coca Cola for example may not know either that it contains caffeine at all or the actual quantity of caffeine that it contains, the same thing may be true of the purchaser of coffee, or of other natural foods containing poisonous or deleterious ingredients. However, in the one case, as in the other, the purchaser obtains the article which he desires in its entire make-up and composition, without addition or subtraction and without the addition of any deleterious ingredient with whose effect he is unaccustomed, and which he does not desire. In short in the one case as in the other, the public obtains without deception exactly the article which it wishes to buy, producing the effect which it desires; and in the one case as well as in the other, I think the article cannot be properly said to be adulterated within the meaning of the Food and Drugs Act, and the plainly expressed intention of Congress on this subject.

To hold otherwise in my opinion, would be beyond the province of the Court and an attempt to reach by judicial construction a supposed evil in the composition of articles of food sold under their distinctive name, which, if a remedy be required, can only properly be obtained by legislation. It is well settled that the function of the Court in the enforcement of a statute is limited to the ascertain-

ment of the legislative intent as expressed in the Act, and cannot extend to either legislation or amendment, and that consideration of apparent hardship will not justify a strained interpretation of the law as it is written. The question, therefore, as to whether the Act as drawn is lacking in essential provisions for the protection of the public health in failing to provide that other articles of food as well as confectionery shall be deemed adulterated if they contain any ingredient deleterious or detrimental to health is clearly a legislative question which it is not within the province of the Court to determine.

Applying to the Act as thus construed to the undisputed facts in evidence, I find the facts established without any contradictory evidence, to be that the name "Coca Cola" is a trade name which has for many years been given by the manufacturer to the food product in question, and upon which name a copyright was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages consisting of a sweet syrup colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the coca leaves and cola nuts which are used to a certain extent in its preparation after being subjected to a process by which the cocaine and certain other ingredients are extracted and also containing as an essential ingredient of the compound caffeine obtained in the main by chemical extraction from therein; that this compound has been for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about one and one-fifth grains to each fluid ounce of the syrup, although slightly less caffeine is contained in the syrup prepared for use in bottles than in that prepared for use at soda fountains and although the percentage of caffeine in each individual container may vary slightly owing to process of manufacture employed, the average caffeine content being, however, substantially as above stated; that for many years this compound, containing such caffeine, has been sold under this trade-mark name of "Coca-Cola" has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States; that no other article of food or beverage has been either manufactured or sold under the name of Coca Cola, that it imitates no other article and is not sold under the distinctive name of any other article, and that this name

distinguishes this particular product from all other articles and beverages, clearly identifies it as a particular kind and brand of beverage made by its manufacturer and sold under this name, and distinguishes it from all other beverages or food products manufactured and sold by other persons.

I therefore find as a conclusion of law, from these facts, that the name "Coca Cola" is and was at the time this libel was filed a distinctive name which clearly distinguishes this particular compound from any other food product; and I further find from the undisputed facts in evidence that the "Coca Cola" sought to be condemned in this case is and was when the libel was filed, a compound known as an article of food under its own distinctive name; that it is and was not an imitation of or offered for sale under the distinctive name of any other article; that the name on the label is and was accompanied with a statement of the places where the article was manufactured; and that the caffeine which it contained is and was not an "added ingredient" within the meaning of the Food and Drugs Act, but is and was a usual and normal constituent of the article that had been and was known to the public under the distinctive name of "Coca Cola." And I therefore conclude that as a matter of law the Coca-Cola in question is not to be deemed as adulterated by the presence of caffeine as an "added" ingredient within the true intent and meaning of the Act.

The conclusion thus reached is strengthened by a consideration of the pleadings in this case. In the libel it is alleged that the food product "Coca Cola" which it was sought to condemn is adulterated in that it contained an "added ingredient" caffeine, which was and is both poisonous and deleterious, yet, the entire proof unquestionably shows that the caffeine contained in the article Coca-Cola is one of its regular, habitual, and essential constituents, and that without its presence, that is, if it were de-caffeinized, so to speak, the product would lack one of its essential elements and fail to produce upon the consumers a characteristic if not the most characteristic effect which is obtained from its use. In short Coca Cola without caffeine would not be "Coca Cola" as it is known to the public and would not produce the effect which the Coca Cola bought by the public under that name produces, and if it were sold as "Coca Cola" without containing caffeine the public buying it under this name would be in fact deceived.

The Government's contention then, under the proof, leads to this — there being, it is to be observed, no issue raised in the pleadings as to the amount of the caffeine

contained — that an entire compound containing a certain ingredient, which is one of its essential ingredients, and without which the compound would lose its characteristic qualities, is, as an entire compound, to be deemed adulterated because it contains such ingredient, on the theory that such ingredient is added to the compound, as distinguished from being contained in it as an essential constituent of the entire compound. It is different to see, however, how any part which is an essential of an entire article, and without which the entire article would not exist, can be, properly deemed to be added to the entire article, or, in short, to be added to the adulterate itself.

The case would be different of course, if the libel alleged that any other constituent of the compound, as for example the syrup, was sold as syrup, and in fact adulterated with caffeine. That, however, is not the case. The libel specifically alleges that the food product "Coca Cola" is adulterated by the addition of caffeine, and the proof unquestionably shows that the caffeine is not an addition to this compound, but is one of its essential and normal ingredients under the distinctive name under which it has been sold and is known to the public.

It results that in so far as the libel charges that Coca Cola is adulterated because it contains caffeine as an added ingredient, the Claimant's motion for peremptory instructions must be sustained.

2. It is also alleged in the libel that the name "Coca-Cola" as used on the label, suggests and represents the presence in this food product of Coca, meaning the leaves of the Coca plant, and that this product does not in fact contain any Coca in its composition, thereby constituting a false and misleading statement regarding the ingredients and substances contained in the "Coca-Cola."

Assuming, for the purpose of determining this motion that there may be a disputed question of fact as to whether the use of the word "Coca" in the name contained upon the label is to be regarded intrinsically and originally as a statement of suggestion of the presence in the product of the leaves of the Coca plant or of some material element or quality derived therefrom, and further assuming that there may be a conflict in the evidence as to whether or not there is contained in "Coca Cola" any portion of the leaves of the Cola plant or any substance or quality derived therefrom to any material degree, the preliminary question arises as to whether, upon the other undisputed facts in evidence these issues of fact shall be submitted to the jury for their determination, as questions of fact, or whether under the other undisputed evidence in the case, these allegations if

true, are, as a matter of law, immaterial.

Without stating my reasons in detail it is sufficient at this time to say that after careful consideration of the question I have, for reasons directly analogous to those which determined my conclusions in reference to the adulteration of an article sold under the distinctive name, concluded that it was the intention of Congress to provide that where a compound article of food was known under its own distinctive name, was not an imitation of any other article of food or sold under the distinctive name of any other article, was properly labeled as to the place of manufacture and contained no "added" poisonous or deleterious ingredient, it should not be deemed misbranded within the meaning of the Food and Drugs Act in so far as any statement of suggestion contained in the name itself is concerned. To hold otherwise would, in my opinion, involve an absolute and irreconciliable contradiction between the several clauses in Sec. 8 of the Act and would render meaningless the express provision of that section that a compound known as an article of food under its own distinctive name, not an imitation of or offered for sale under the distinctive name of another article, properly labeled with the place of manufacture, and not containing any added poisonous or deleterious ingredients, shall not be deemed to be mis-branded. Obviously if the article contains the same constituents as those normally and regularly contained under the distinctive name under which it is sold and under which it is known to the public, the distinctive name indicating this distinctive article, is not misleading, but on the contrary serves to directly inform the public that it is the specific article which the public knows under that name and desires to buy.

It results from the facts hereinbefore found from the undisputed evidence that in so far as the libel charges the misbranding of the Coca Cola by reason of any false statement of suggestion contained in the name itself, the claimant's motion for peremptory instructions must be sustained.

3. It also results from what has been heretofore stated that in so far as the libel charges that the Coca Cola is mis-branded because of being an imitation of or offered for sale under the distinctive name of another article, in the entire absence of evidence to show that this is the case, the claimant's motion for peremtory instructions in so far as this charge of the libel is concerned, must also be sustained.

4. With reference to the charge that the Coca-Cola was mis-branded by reason of being mixed, colored or stained by the use of coloring substance whereby damage or in-

feriority of the mixture was concealed, without expressing any opinion upon the weight of the evidence, I am of the opinion that the evidence is not so undisputed as to constitute the solution of this question a mere matter of law, but that this question should be left to the jury under the issues raised by the pleadings.

So far, therefore, as this charge in the libel is concerned, claimant's motion must be overruled.

5. As to the charge in the libel that the pictorial design of coca leaves on the labels is misleading in that it represents and suggests the presence of the substance coca in the "Coca Cola" product I have had great difficulty. While it is apparently true that under the provision of the Act heretofore quoted that no compound food product sold under its own distinctive name shall be deemed to be misbranded, when it contains no added poisonous or deleterious ingredient and is otherwise sold and labeled in accordance with the Act, it would aparently follow as a matter of the strict letter of the law that in the absence of any added poisonous or deleterious ingredient, a product thus sold under its distinctive name cannot be deemed mis-branded upon any ground. I have concluded, however, that giving a fair and reasonable construction to the somewhat conflicting provisions of the Act, it was only intended to protect an article sold under its distinctive name from the charge of mis-branding in so far as any statement or suggestion contained in the name itself is concerned, and that it was not intended to present the condemnation of the article as misbranded even though sold under its own distinctive name if in addition to such distinctive name the label contains other misleading statements, designs or devices. Without expressing any opinion as to whether the pictorial design on the label in question is misleading in any particular as to the presence of coca leaves or any ingredient or quality derived therefrom, I am of the opinion that under the evidence in the case this is not purely a question of law, but is a question of fact which, under all the evidence should be submitted to the jury for its determination. Therefore in so far as the charge of mis-branding based upon the pictorial design of coca leaves upon the label is concerned, the claimant's motion for peremptory instructions will be overruled.

To the extent hereinabove stated the claimant's motion for peremptory instructions is accordingly sustained; otherwise it is overruled.

Mr. Miller: It must have been patent from the outset that one of the primary questions in the case, in fact, the crucial question is that of the deleteriousness of the caf-

feine. I take it that no one who has gone through the trial or given even casual attention to it would think otherwise. Now, it is desired by the government to test this matter as speedily as possible. With that end in view, I ask leave to dismiss as to the two features, No. 4 and 5, in your Honor's opinion, and I trust you will not deem me undeferential if I ask an appeal at this time.

Mr. Sizer: I understand you dismiss as to both of those matters.

Mr. Miller: Yes, and we have a right to do it.

The Court: The motion for leave to dismiss is allowed. I think it is very proper that that should be done. The matter of appeal, of course, will be prepared in proper form.

Mr. Miller: I simply give notice of the fact.

The Court: I shall be glad to act on it. Of course the fundamental question is as to the construction of the statute.

Mr. Sizer: Then it follows that Your Honor directs a verdict for the Defendant.

The Court: Gentlemen of the jury, in pursuance of my action on the claimant's motion for peremptory instructions, and in consequence of the dismissal by the Government in open Court and in your presence of the two questions of disputed facts in the case, which I think ought to be submitted to you for your consideration, and in consequence of the fact that upon the other questions in the case upon the undisputed evidence in my opinion the Government is not entitled to a verdict at your hands, and in consequence of my action in sustaining the motion for a peremptory instruction as to such other grounds, I now direct you to return a verdict in favor of the claimant, the Coca Cola Company. You may return that without leaving your seats.

The Government then and there excepted to the action of the Court for the reasons more fully set forth in its motion for a new trial herein, and then further asked leave and was permitted to dismiss as to the matters embodied in the pleadings and dealt with in Items 4 and 5 of the trial Court's opinion.

Thereupon the Court directed a verdict for the Claimant, to which the Government excepted.

The Government, within the time and in the manner prescribed by law and rule of the Court, presented its motion for a new trial, which is in the words and figures following:

MOTION FOR NEW TRIAL.

Now comes the libellant, United States of America, by

attorney, and moves the Court to set aside the verdict and judgment in said cause and grant a new trial for the following reasons:

(1) The Court erred in peremptorily instructing the jury that the Coca Cola in controversy was not adulterated, as averred in the libel.

(2) The Court erred in its findings, conclusion and direction that the Coca Cola seized was not adulterated, the finding and direction in this behalf being substantially as follows:

> "And I therefore conclude that as a matter of law the Coca Cola in question is not to be deemed as adulterated by the presence of caffeine as an 'added' ingredient within the true intent and meaning of the Act. * * * It results that in so far as the libel charges that Coca Cola is adulterated because it contains caffeine as an added ingredient, the claimant's motion for peremptory instructions must be sustained."

(3) Whether or not caffeine was a deleterious or poisonous ingredient of the Coca Cola syrup, which might have rendered the product injurious to health, should have been submitted to the jury.

(4) The Court erred in its findings, conclusions and direction that the name "Coca Cola" did not constitute a representation of the presence in the product seized of the substances Coca and Cola, and hence that such product was mis-branded, the Court's conclusion in this behalf being:

> "It results from the facts hereinbefore found from the undisputed evidence, that in so far as the libel charges the mis-branding of the Coca Cola by reason of any false statement or suggestion contained in the name itself, the claimant's motion for peremptory instructions must be sustained."

(5) The Court erred in its findings, conclusion, and direction, that the Coca Cola seized was not offered for sale under the distinctive name of the substances Coca and Cola, one or both, as averred in the libel, its conclusion in this behalf being:

> "It also results from what has been heretofore stated that in so far as the libel charges that the Coca Cola is misbranded because of being an imitation of or offered for sale under the distinctive name of another article, in the entire absence of evidence to show that this is the case, the Claimant's motion for peremptory instructions in so far as this charge of the libel is concerned, must also be sustained."

(6) The Court erred in its conclusion that "in so far

as any statement or suggestion contained in the name itself is concerned," the product seized was not misbranded.

(7) The Court erred in its failure and refusal to submit the case to the jury on issues 1, 2, 4, 5, 6, 7, 8, and 9, submitted by libellant.

(8) The Court erred in finding and holding that "the name Coca Cola is a trade name which has for many years been given by the manufacturer to the food product in question and upon which name a trade mark was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages, consisting of a sweet syrup, colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the Coca leaves and the Cola nuts, which are used to a certain extent after being subjected to a process by which the cocaine and other certain ingredients are extracted, and also containing as an essential ingredient of the compound caffeine obtained in the main by chemical extraction from theine, that this compound has for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about 1-1/5 grains to each fluid ounce of the syrup, although slightly less caffeine is contained in the syrup prepared for use in bottles than in that prepared for use at soda fountains; * * * that for many years this compound containing such caffeine has been sold under this trade mark name of Coca Cola, has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States; * * * that this name distinguishes this particular product from all other beverages and articles and clearly identifies it as a particular kind and brand of beverage made by its manufacturer and sold under this name, and distinguishes it from all other beverages or food products manufactured and sold by other persons," — because the undisputed proof shows that cocaine in appreciable quantities was used in this mixture up to about 1904, and was then taken out of the mixture, so that the ingredients have not been the same or substantially the same since the use of cocaine was dispensed with.

The finding aforesaid, that the mixture contains "perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent in its preparation after being subjected to a process by which the Cocaine and certain other ingredients are extracted is

erroneous in that (a) up to about 1904, all the cocaine was not extracted, but, on the contrary, an appreciable quantity was contained in the mixture, and (b) none of the ingredients contained in the mixture impart to it either an appreciable quantity or desirable quality of Coca or Cola.

(9) The Court erroneously found and held in substance that for a long number of years Coca Cola has been made according to the same formula.

(10) The Court erroneously found and held that Coca Cola "imitates no other article and is not sold under the distinctive name of any other article, for this, that the name itself implies a mixture or compound of an appreciable quantity of Coca and Cola, imparting to the product seized a substantial or desirable quality of both said substances Coca and Cola.

(11) The Court erroneously found and held that the name Coca Cola "distinguishes this particular product from all other beverages and articles," for this, that said name does not distinguish the product from any other mixture or compound composed of Coca and Cola.

(12) The Court erroneously found and held that if Coca Cola "were sold as Coca Cola without containing caffeine, the public buying it under this name would in fact be deceived," for this, that there is no proof sustaining this conclusion, or at least the proof cannot be said to be undisputed in this respect.

(13) The Court erroneously found and held that the mixture of Coca-Cola seized "has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States," for this, (a) that the mixture advertised and sold under the name Coca Cola prior to about 1904, contained an appreciable quantity of cocaine, and since that time the cocaine has been removed therefrom; and (b) the proof is not undisputed that the mixture in question has "become generally known — to consumers in the United States," as a caffeine containing drink.

(14) The Court erroneously found and held that — "In short, Coca Cola without caffeine would not be coca cola as it is known to the public, and would not produce the effect which the Coca Cola bought by the public under that name produces, and if it were sold as Coca Cola without containing caffeine, the public buying it under this name would be in fact deceived," * * * for this, that the undisputed proof does not support such finding.

This motion is based on the records and files in the cause and the testimony taken on the trial thereof.

THE UNITED STATES.
By JAMES B. COX, U. S. Dist. Atty.
W. B. MILLER,
Special Assistant to the Attorney General.
(Endorsed) Filed, April 15th, 1911.
R. M. WATKINS, Dep. Clerk.

The Government thereupon tenders this, its Bill of Exceptions to the Judgment of the Court directing a verdict against it and overruling its motion for new trial, which is signed, sealed and ordered to be made a part of the record.

This July 10th, 1911.

EDWARD T. SANFORD, Judge.

O. K. — J. B. SIZER, for Claimant.
(Endorsed) Bill of Exceptions.
Filed July 11, 1911.
R. M. WATKINS, Dep. Clerk.

IN THE
DISTRICT COURT OF THE UNITED STATES,
EASTERN DISTRICT OF TENNESSEE,
SOUTHERN DIVISION.

United States
vs.
Forty Barrels and Twenty Kegs Coca-Cola. } No. 53.

MEMORANDUM OPINION AS TO MOTION FOR NEW TRIAL AND BILL OF EXCEPTIONS.

The libellant's motion for new trial, with the briefs, has been forwarded to me at Nashville for adjudication, but owing to the pressure of other work requiring immediate attention, I have been unable to take up and consider the motion for new trial. I have, therefore, concluded that in order that the rights of neither party may be prejudiced by this delay, an order should be entered reciting that the motion for new trial has been taken under advisement by the Court and its determination continued to the next term, and further providing that the cause is continued to the next term for the purpose of acting on the motion for new trial, and also for the purpose of settling, allowing, signing and filing any bills of exception that may be presented by either party herein. See Ward v. Cochran, 150 U. S., 597, 603; Minahan v. Grand Trunk R. Co. (C. C. A., 6), 138 Fed., 37. I have accordingly signed such an order for entry by the Clerk.

(Signed) SANFORD, Judge.

May 16, 1911.

TUESDAY MORNING, MAY 16, 1911.

Court met pursuant to adjournment.

Present and presiding the Honorable Edward T. Sanford, Judge of the United States District Court for the Eastern and Middle Districts of Tennessee.

United States
vs.
40 Barrels and 20 Kegs Coca-Cola. } No. 53.

In this cause, the libellant's motion for new trial having been taken under advisement by the Court, this cause is continued to the next term of this Court for the purpose of acting upon said motion for new trial and entering any further orders or decrees that may be necessary in consequence of any action that may be taken on such motion for new trial, and also for the purpose of settling, allowing, signing and filing any bills of exception that may be presented by either the libellant or the claimant after action has been taken on said motion for new trial.

May 16, 1911. Enter:

SANFORD, Judge.

IN THE
DISTRICT COURT OF THE UNITED STATES,
EASTERN DISTRICT OF TENNESSEE,
SOUTHERN DIVISION.

United States
vs.
Forty Barrels and Twenty Kegs Coca-Cola. } No. 53.

ORDER.

In this cause the motion of the libellant to set aside the verdict and judgment and award a new trial is, upon consideration, overruled and disallowed. To the action of the Court in overruling said motion the libellant then and there excepted.

It is further ordered that the decree heretofore entered in this cause adjudging all costs against the libellant be and the same is hereby so modified and corrected as to adjudge and provide that no costs be taxed against the libellant and that the claimants pay its own costs in this cause.

DISTRICT COURT OF UNITED STATES,
SOUTHERN DIVISION,
EASTERN DISTRICT OF TENNESSEE.

United States
vs.
Forty Barrels and Twenty Kegs Coca-Cola. } No. 53.

PETITION FOR WRIT OF ERROR.

Now comes the United States of America, above Libellant, and says that on or about April 6, 1911, this Court entered judgment herein in favor of The Coca-Cola Company, intervenor in above cause, and against this Libellant, dismissing the above suit; and subsequently, in legal manner and form, this libellant entered a motion for a new trial herein, which motion was held under advisement until about June 8, 1910, when it was over-ruled and disallowed, to which this libellant, petitioner, excepted, and thereupon final judgment was entered herein on June 8th, last.

In said judgment and the proceedings had both prior and subsequent thereto and in the over-ruling of said motion for a new trial, certain errors were committed to the prejudice of this petitioner, all of which will more in detail appear from the Assignment of Errors which is filed herewith.

Wherefore, petitioner prays that a Writ of Error may issue in this behalf out of the United States Circuit Court of Appeals for the Sixth Circuit for the correction of errors so complained of; and that a transcript of the record proceedings and papers in this cause, duly authenticated, may be sent to the said Circuit Court of Appeals.

THE UNITED STATES OF AMERICA.
By JAMES B. COX, U. S. District Atty.
W. B. MILLER,
Special Assistant Attorney General.

DISTRICT COURT OF UNITED STATES,
SOUTHERN DIVISION,
EASTERN DISTRICT OF TENNESSEE.

United States
vs.
Forty Barrels and Twenty Kegs Coca-Cola. } No. 53.

ASSIGNMENT OF ERRORS.

The United States of America, above libellant, in connection with its petition for a writ of error herein, makes the following assignment of errors, which it avers occurred upon the trial of this cause, to-wit:

I.

The Court erred in peremptorily instructing the jury that the Coca-Cola in controversy was not adulterated, as averred in the Libel.

II.

The Court erred in its findings, conclusion and direction

that the Coca-Cola seized was not adulterated, the finding and direction in this behalf being substantially as follows:

> "And I therefore conclude that as a matter of law the Coca-Cola in question is not to be deemed as adulterated by the presence of caffeine as an 'added' ingredient within the true intent and meaning of the act. * * * * It results that in so far as the libel charges that Coca-Cola is adulterated because it contains caffeine as an added ingredient, the claimant's motion for peremptory instructions must be sustained."

III.

Whether or not caffeine was a deleterious or poisonous ingredient of the Coca-Cola syrup which might have rendered the product injurious to health, should have been submitted to the jury.

IV.

The Court erred in its findings, conclusions and direction that the name "Coca-Cola" did not constitute a representation of the presence in the product seized of the substances Coca and Cola, and hence that such product was misbranded, the Court's conclusion in this behalf being:

> "It results from the facts hereinbefore found from the undisputed evidence, that in so far as the libel charges the mis-branding of the Coca-Cola by reason of any false statement or suggestion contained in the name itself, the claimant's motion for peremptory instructions must be sustained."

V.

The Court erred in its findings, conclusion and direction that the Coca-Cola seized was not offered for sale under the distinctive name of the substances Coca and Cola, one or both, as averred in the libel, its conclusion in this behalf being:

> "It also results from what has been heretofore stated that in so far as the libel charges that the Coca-Cola is mis-branded because of being an imitation of or offered for sale under the distinctive name of another article, in the entire absence of evidence to show that this is the case, the Claimant's motion for peremptory instructions in so far as this charge of the libel is concerned, must also be sustained."

VI.

The Court erred in its conclusion that "in so far as any statement or suggestion contained in the name itself is concerned," the product seized was not mis-branded, in

that the name suggests an appreciable quantity and quality of both Coca and Cola, which suggestion presented a question of fact that should have been submitted to the jury.

VII.

The Court erred in its failure and refusal to submit the case to the jury on issues 1, 2, 4, 5, 6, 7, 8, and 9, submitted by libellant.

VIII.

The Court erred in finding and holding that

> "the name Coca-Cola is a trade name which has for many years been given by the manufacturer to the food product in question and upon which name a trade-mark was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages, consisting of a sweet syrup, colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent after being subjected to a process by which the cocaine and certain other ingredients are extracted, and also containing as an essential ingredient of the compound caffeine, obtained in the main by chemical extraction from thein; that this compound has been for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about 1 1/5 grains to each fluid ounce of the syrup, although slightly less caffeine is contained in the syrup prepared for use in bottles than in that prepared for use at soda fountains; * * * that for many years this compound containing such caffeine has been sold under this trade-mark name of Coca-Cola, has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States; * * * that this name distinguishes this particular product from all other beverages and articles and clearly identifies it as a particular kind and brand of beverages made by its manufacturer and sold under this name, and distinguishes it from all other beverages or food products manufactured and sold by other persons", —

because the undisputed proof shows that cocaine in appreciable quantities was used in this mixture up to about

1904, and was then taken out of the mixture, so that the ingredients have not been the same or substantially the same since the use of cocaine was dispensed with.

The finding aforesaid that the mixture contains "perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent in its preparation after being subjected to a process by which the cocaine and certain other ingredients are extracted", is erroneous, in that (a) up to about 1904 all the cocaine was not extracted, but, on the contrary, an appreciable quantity was contained in the mixture, and (b) none of the ingredients contained in the mixture impart to it either an appreciable quantity or desirable quality of Coca or Cola.

Wherefore, the case should have been submitted to the jury upon the issues shown and presented above.

IX.

The Court erroneously found and held in substance that for a long number of years Coca-Cola had been made according to the same formula.

X.

The Court erroneously found and held that Coca-Cola "imitates no other article and is not sold under the distinctive name of any other article, for this, that the name itself implies a mixture or compound of an appreciable quantity of Coca and Cola, imparting to the product seized a substantial or desirable quality of both said substances Coca and Cola.

XI.

The Court erroneously found and held that the name Coca-Cola "distinguished this particular product from all other beverages and articles", for this, that said name does not distinguish the product from any other mixture or compound composed of Coca and Cola.

XII.

The Court erroneously found and held that if Coca-Cola "were sold as 'Coca-Cola' without containing caffeine, the public buying it under this name would be in fact deceived", for this, that there is no proof sustaining this conclusion, or at least the proof cannot be said to be undisputed in this respect.

XIII.

The Court erroneously found and held that the mixture of Coca-Cola seized "has been extensively advertised under this name, and has under this name become generally

known to the trade and to consumers in the United States," for this, (a) that the mixture advertised and sold under the name Coca-Cola prior to about 1904, contained an appreciable quantity of cocaine, and since that time the cocaine has been removed therefrom; and (b) the proof is not undisputed that the mixture in question has "become generally known * * * * * to consumers in the United States" as a caffeine-containing drink.

XIV.

The Court erroneously found and held that —

> "In short, Coca-Cola without caffeine would not be Coca-Cola as it is known to the public, and would not produce the effect which the Coca-Cola bought by the public under that name produces, and if it were sold as Coca-Cola without containing caffeine, the public buying it under this name would be in fact deceived," —

for this, that the undisputed proof does not support such finding. But, on the contrary, a controverted question of fact in this respect is presented which should have been submitted to the jury.

XV.

The Court erred in directing a verdict for the Coca-Cola Company.

Wherefore, petitioner (libellant) prays that the judgment of the District Court be reversed.

THE UNITED STATES OF AMERICA,
By JAMES B. COX, U. S. District Attorney.
W. B. MILLER,
Special Assistant Attorney General.

DISTRICT COURT OF UNITED STATES,
SOUTHERN DIVISION,
EASTERN DISTRICT OF TENNESSEE.

United States
vs.
Forty Barrels and Twenty Kegs Coca-Cola. } No. 53.

On this 21st day of November, 1911, came above libellant through its attorney and filed herein and presented to the Court its petition praying for the allowance of a writ of error on an assignment of errors intended to be urged by it, praying also that a transcript of the record and proceedings and papers upon which the judgment herein was rendered, duly authenticated, may be sent to the United States Circuit Court of Appeals for the Sixth Judicial Circuit,

and that such other and further proceedings may be had as may be proper in the premises, on consideration whereof the Court does allow the writ of error.

EDWARD T. SANFORD,
U. S. District Judge.

O. K. — W. B. MILLER.
J. B. SIZER.
See R. S. (U. S.), Sect. 1001.

WRIT OF ERROR.

UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

United States of America, }
Sixth Judicial Circuit, } ss:

The President of the United States,
To the Honorable the Judge of the.....Court of the United States for the.....District of.....

Greeting:

Because in the record and proceedings, as also in the rendition of the judgment of a plea which is in the said District Court, before you, or some of you, between United States of America and 40 Barrels and 20 Kegs of Coca-Cola a manifest error hath happened, to the great damage of the said United States of America, as by its complaint appears. We being willing that error, if any hath been, should be duly corrected, and full and speedy justice done to the parties aforesaid in this behalf, do command you, if the judgment be therein given, that then under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the United States Circuit Court of Appeals for the Sixth Circuit, together with this writ, so that you have the same at Cincinnati, in said Circuit, on the *23rd day of December, next, in the said Circuit Court of Appeals, to be then and there held, that the record and proceedings aforesaid being inspected, the said Circuit Court of Appeals may cause further to be done therein to correct that error, what of right, and according to the laws and customs of the United States, should be done.

(Seal) WITNESS the Honorable Edward D. White, Chief Justice of the United States, the 24th day of November, in the year of our Lord one thousand nine hundred and eleven, and of the Independence of the United States of America the

one hundred and thirty-fifth.

HORACE VANDEVENTER,
Clerk of the District Court of the United States.
By R. M. WATKINS, Deputy Clerk.

Allowed by
EDWARD T. SANFORD, U. S. Dist. Judge.

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* Not exceeding 30 days from the day of signing the citation.

CITATION.

United States of America, } ss:
Sixth Judicial Circuit, }

The President of the United States to The Coca-Cola Company,

Greeting:

You are hereby cited and admonished to be and appear at a session of the United States Circuit Court of Appeals for the Sixth Circuit, to be holden at the City of Cincinnati in the said Circuit Court on the 23rd day of December next, pursuant to a writ of error filed in the Clerk's office of the District Court of the United States for the Eastern District of Tennessee, and also an order allowing such writ of error, wherein the United States is plaintiff in error and you are defendant in error, to show cause, if any there be, why the judgment rendered against the said plaintiff in error, as in the writ of error mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

Witness the Honorable E. T. Sanford, Judge of the United States District Court in and for the Eastern District of Tennessee, this 25th day of November, 1911.

EDWARD T. SANFORD,
United States District Judge.

Attest:
R. M. WATKINS, Deputy Clerk.

We hereby this 8th day of December, 1911, accept due personal service of this citation on behalf the Coca-Cola Company, appellee.

J. B. SIZER, Attorney.

ASSIGNMENT OF ERROR.

And now comes said Libellant and says that in the record and proceedings in this cause and in the final decree and judgment herein, there is manifest error in the following, — and other particulars: —

I.

The Court erred in peremptorily instructing the jury

that the Coca Cola in controversy was not adulterated, as averred in the libel.

II.

The Court erred in its findings, conclusion and direction that the Coca Cola seized was not adulterated, the finding and direction in this behalf being substantially as follows:

> "And I therefore conclude that as a matter of law the Coca Cola in question is not to be deemed as adulterated by the presence of caffeine as an 'added' ingredient within the true intent and meaning of the Act. * * * * It results that in so far as the libel charges that Coca Cola is adulterated because it contains caffeine as an added ingredient, the claimant's motion for peremptory instructions must be sustained."

III.

Whether or not caffeine was a deleterious or poisonous ingredient of the Coca Cola syrup which might have rendered the product injurious to health, should have been submitted to the jury.

IV.

The Court erred in its findings, conclusions and direction that the name "Coca Cola" did not constitute a representation of the presence in the product seized of the substances Coca and Cola, and hence, that such product was mis-branded, the Court's conclusion in this behalf being:

> "It results from the facts hereinbefore found from the undisputed evidence, that in so far as the libel charges the mis-branding of the Coca Cola by reason of any false statement or suggestion contained in the name itself, the claimant's motion for peremptory instructions must be sustained."

V.

The Court erred in its findings, conclusions and direction that the Coca Cola seized was not offered for sale under the distinctive name of the substances Coca and Cola, one or both, as averred in the libel, its conclusion in this behalf being:

> "It also results from what has been heretofore stated that in so far as the libel charges that the Coca Cola is mis-branded because of being imitation of or offered for sale under the distinctive name of another article, in the entire absence of evidence to show that this is the case, the claimant's motion for peremptory instructions in so far as the charge of the libel is concerned, must also be sustained."

VI.

The Court erred in its conclusion that "in so far as any statement or suggestion contained in the name itself is concerned", the product seized was not mis-branded, in that the name suggests an appreciable quantity and quality of both Coca and Cola, which suggestion presented a question of fact that should have been submitted to the jury.

VII.

The Court erred in its failure and refusal to submit the case to the jury on issues 1, 2, 4, 5, 6, 7, 8 and 9, submitted by Libellant.

VIII.

The Court erred in holding that "the name Coca Cola is a trade name which has for many years been given by the manufacturer to the food product in question and upon which name a trade mark was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages, consisting of a sweet syrup, colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent after being subjected to a process by which the cocaine and certain other ingredients are extracted, and also containing as an essential ingredient of the compound caffeine, obtained in the main by chemical extraction from thein; that this compound has been for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about one and one-fifth grains to each fluid ounce of the syrup although slightly less caffeine is contained in the syrup for use at soda fountains; * * * that for many years this compound containing such caffeine has been sold under this trade mark name of Coca-Cola, has been extensively advertised under this name, become generally known to the trade and to consumers in the United States; * * * * that this name distinguishes this particular product from all other beverages and articles and clearly identifies it as a particular kind and brand of beverages made by its manufacturer and sold under this name, and distinguishes it from all other beverages or food products manufactured and sold by other persons", because the undisputed proof shows that cocaine in appreciable quantities was used in this mixture up to about 1904, and was then taken out of the mixture, so that the ingredients

have not been the same or substantially the same since the use of caffeine was dispensed with.

The finding aforesaid that the mixture contains "perhaps some ingredients or qualities derived from the Coca leaves and Cola nuts, which are used to a certain extent in its preparation after being subjected to a process by which cocaine and other certain ingredients are extracted", is erroneous, in that (a) up to about 1904 all the cocaine was not extracted but, on the contrary, an appreciable quantity was contained in the mixture, and (b) none of the ingredients contained in the mixture impart to it either an appreciable quantity or desirable quality of Coca or Cola.

Wherefore the case should have been submitted to the jury upon the issues shown and presented above.

IX.

The Court erroneously found and held in substance that for a long number of years Coca Cola has been made accordingly to the same formula.

X.

The Court erroneously found and held that "Coca Cola" imitates no other article and is not sold under the distinctive name of any other article, for this, that the name itself implies a mixture or compound of an appreciable quantity of Coca Cola, imparting to the product seized a substantial or desirable quality of both said substances Coca and Cola.

XI.

The Court erroneously found and held that the name Coca Cola "distinguished this particular product from all other beverages and articles", for this, that said name does not distinguish the product from any other mixture or compound composed of Coca and Cola.

XII.

The Court erroneously found and held that if Coca Cola "were sold as Coca Cola without containing caffeine the public buying it under this name would be in fact deceived", for this, that there is no proof sustaining this conclusion or at least the proof cannot be said to be undisputed in this respect.

XIII.

The Court erroneously found and held that the mixture of Coca Cola seized "has been extensively advertised under this name, and has under this name become generally known to the trade and to consumers in the United States," for this (a) that the mixture advertised and sold

under the name Coca Cola prior to about 1904, contained an appreciable quantity of cocaine, and since that time the cocaine has been removed therefrom; and (b) the proof is not undisputed that the mixture in question has "become generally known * * * * * to consumers in the United States" as a caffeine-containing drink.

XIV.

The Court erroneously found and held that — "In short, Coca Cola without caffeine would not be Coca Cola as it is known to the public, and would not produce the effect which the Coca Cola bought by the public under that name produces, and if it were sold as Coca Cola without containing caffeine, the public buying it under this name would be in fact deceived," — for this, that the undisputed proof does not support such finding, but on the contrary, a controverted question of fact in this respect is presented which should have been submitted to the jury.

XV.

The Court erred in directing a verdict for the Coca Cola Company.

Wherefore the said Libellant prays that for the aforesaid errors found in the record of said cause and said decree, the same may be reversed and a decree and judgment entered herein in accordance with the prayer of the information, and for such other and further relief as may be proper in the premises.

THE UNITED STATES OF AMERICA,
By JAMES B. COX, U. S. District Atty.

W. B. MILLER,
Special Assistant Attorney General.

(Endorsed). Filed, December 5th, 1911.
R. M. WATKINS, Dep. Clerk.

The above named Libellant conceiving itself aggrieved by the decree made and entered herein on the 8th day of June, 1911, does hereby appeal from said order and decree to the U. S. Circuit Court of Appeals for the Sixth Circuit, for the reasons specified in the assignment of errors which is filed herewith, and prays that this appeal may be allowed, and that a transcript of the record, proceedings and papers — including the Bill of Exceptions herein — upon which said order was made, duly authenticated, may be sent to the U. S. Circuit Court of Appeals for the Sixth Circuit.

Dated December 5th, 1911.

THE UNITED STATES OF AMERICA,

By JAMES B. COX, U. S. Dist. Attorney.
W. B. MILLER,
Special Assistant Attorney General.

The foregoing claim of appeal is allowed this Dec. 5th, 1911.

EDWARD T. SANFORD, Judge.

O. K. — SIZER.

To the Coca Cola Company:

Whereas, the United States of America, above Libellant, has lately appealed to the United States Circuit Court of Appeals for the Sixth Circuit from a decree lately rendered in the District Court of United States for the Southern Division of the Eastern District of Tennessee, made in favor of you in the above styled cause; you are hereby cited to appear before the said Circuit Court of Appeals at the City of Cincinnati on the 4th day of January next to do and receive what may appertain to justice to be done in the premises.

Given under my hand at the City of Chattanooga, in the Sixth Circuit, this 5th day of December, in the year of our Lord one thousand nine hundred and eleven.

EDWARD T. SANFORD,
Judge of the District Court of the United States
for the Eastern District of Tennessee.

Service accepted and duly acknowledged as if served by an officer, this December 7th, 1911.

THE COCA COLA COMPANY.
By J. B. SIZER, Atty.

(Filed). December 5th, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER EXTENDING TIME.

For satisfactory reasons appearing to the Court, the time for filing the record in this cause in the Circuit Court of Appeals, pursuant to both the appeal and writ of error sued out herein, is extended until the 22nd day of January, 1912.

This December 22nd, 1911.

EDWARD T. SANFORD, District Judge.

(Endorsed). Order extending time.
Filed, December 22nd, 1911.
R. M. WATKINS, Dep. Clerk.

ORDER EXTENDING TIME.

For satisfactory reasons appearing to the Court, the time for filing the record in this cause in the Circuit Court of Appeals, pursuant to both the appeal and Writ of error

sued out herein, is extended until the 24th day of February, 1912.

This January 17th, 1912.

SANFORD, District Judge.

(Endorsed). Order extending time.
Filed, January 17th, 1912.

R. M. WATKINS, Dep. Clerk.

ORDER EXTENDING TIME.

In this cause, for sufficient reasons, the Libellant is allowed an additional extension of sixty days in which to prepare and file transcript of the record in the United States Circuit Court of Appeals at Cincinnati.

Approval for entry:

SANFORD, Judge.

February 21st, 1912.
(Endorsed). Order extending time.
Entered and filed, February 21st, 1912.

By R. M. WATKINS, Dep. Clerk.

ORDER EXTENDING TIME.

For satisfactory reasons appearing to the Court, the time in which to prepare and transmit to the Circuit Court of Appeals at Cincinnati, the transcript of the record in this case, is extended sixty (60) days.

This 5th day of April, 1912.

Approved for entry:

SANFORD, Judge.

(Endorsed). Filed, April 5th, 1912.

R. M. WATKINS, Dep. Clerk.

United States
vs.
Forty Barrels and Twenty Kegs Coca-Cola. } No. 53.

The time for preparing and filing the transcript of the record, in this case, in the Circuit Court of Appeals at Cincinnati, is extended sixty days.

June 7th, 1912.

Approved for entry:

SANFORD, Judge.

(Endorsed). Order extending time.
Filed June 7, 1912.

By R. M. WATKINS, Dep. Clerk.

1922 PROCEEDINGS IN THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

PETITION TO ADVANCE CAUSE.

(Filed Oct. 7, 1913.)

United States Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA, PLAINTIFF IN error, *v.* FORTY BARRELS AND TWENTY KEGS OF Coca Cola, defendant in error.	No. 2415 from the Eastern District of Tennessee.

Petition of plaintiff in error to advance cause for hearing.

To the honorable court:

Now comes above plaintiff in error, as petitioner, and respectfully shows—

(1) That this controversy presents for construction the food and drugs act of June 30. 1906, in three important particulars, to wit:

(a) What the signification of and what construction to be given the word "added" in section 7, subsection 5th of said act, which declares a food adulterated—

"If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health."

1923 (b) What the true intent and meaning of section 8, subsection 1, of said act, declaring a food misbranded—

"If it be an imitation of or offered for sale under the name of another article."

(c) The true intent and meaning of the phrase "Their own distinctive names" as used in section 8, subsection 4, proviso 1st, of said act with respect to mixtures or compounds "known as articles of food under their own distinctive names."

(2) This controversy was tried below in April, 1911, to which time the Government officials specially charged by the terms of said act with the enforcement thereof, together with their subordinates, had given an interpretation and construction to the portions thereof above shown quite at variance with the construction and interpretation given and adjudged by the trial court and in direct conflict therewith.

(3) Wherefore, since the date of said judgment much confusion and embarrassment have resulted and will continue until a final determination of the present controversy, to the detriment of the public service and confusing alike to the department officials charged with the execution of said act and to the manufacturers and

1924 dealers affected thereby.

(4) Petitioner presents herewith, endorsed below, a waiver of the five days' notice to opposing counsel, as provided by rule 3 of this honorable court.

The premises seen, petitioner prays, for the reasons above, this cause be advanced for hearing on Wednesday, October 15, 1913, or as speedily thereafter as consistent, and for general relief.

Respectfully submitted.

LEWIS M. COLEMAN,
U. S. District Attorney for the Eastern District of Tennessee.
W. B. MILLER,
Special Assistant to the Attorney General.

STATE OF TENNESSEE,
Hamilton County:

Personally appeared before the undersigned authority Lewis M. Coleman and W. B. Miller, who, being sworn, depose and say that they are attorneys for the foregoing petitioner and that the statements contained in the above petition are true to the best of their knowledge, information, and belief.

LEWIS M. COLEMAN.
W. B. MILLER.

1925 Sworn to and subscribed before me this October 6, 1913.

[SEAL.] W. H. NORVELL,
Notary Public.

The defendant in error in the foregoing petition hereby waives the five days' notice prescribed by rule 3 of the court, and agrees that that foregoing application may be at once presented for consideration.

Defendant in error also acknowledges the receipt of a copy of said petition.

J. B. SIZER,
Atty. for Defendant in Error.

This October 6, 1913.

Endorsement. Petition of plaintiff in error to advance cause for hearing. Filed Oct. 7, 1913. Frank O. Loveland, clerk.

TELEGRAM ATTACHED TO PETITION.

(Received Oct. 7, 1913.)

64 BM RS 36 Govt Delivery No. 766.

Chattanooga Tenn Oct 7 13

Mr. FRANK O. LOVELAND
Clerk U. S Court of Appeals Cincinnati O

Apropos petition advance hearing Coca Cola case please advise court all counsel join in request for hearing Thursday October sixteenth.

W. B. MILLER
Special Assistance

1926 ENTRY—PETITION TO ADVANCE SUBMITTED.

(Oct. 7, 1913.)

United States Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA
v. #2415.
THE COCA-COLA COMPANY.

Motion to advance this cause for hearing is submitted.

ORDER ADVANCING CAUSE.

(Filed Oct. 8, 1913.)

United States Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA, PLAINTIFF in error,
vs. #2415. Order.
THE COCA-COLA COMPANY, DEFENDANT in error.

Motion to advance this cause for hearing is granted, and the case is assigned for argument at the opening of the November session, after cases already set for hearing at that session, on condition that briefs be filed as follows, viz, for the plaintiff in error on or before October 14th, for the defendant in error on or before October
1927 25th, and reply brief for plaintiff in error on or before November 1st, 1913.

Approved.

WARRINGTON, *Cir. J.*

ENTRY—CAUSE ARGUED AND SUBMITTED.

(Nov. 10, 1913. Before Warrington, Knappen, and Denison, circuit judges.)

United States Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA
vs. #2415.
THE COCA-COLA COMPANY.

This cause is argued by Mr. W. B. Miller and Mr. Lewis M. Coleman for the United States and by Mr. J. B. Sizer and Mr. Harold Hirsch for the Coca-Cola Company and is submitted to the Court.

JUDGMENT.

(Entered June 13, 1914.)

United States Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA
vs.
THE COCA-COLA COMPANY. } #2415.

Error to and appeal from the District Court of the United
1928 States for the Eastern District of Tennessee.

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Eastern District of Tennessee and was argued by counsel.

On consideration whereof it is now here ordered and adjudged by this court that the judgment of the said district court in this cause be, and the same is hereby, affirmed.

Endorsement. No. 2415. United States Circuit Court of Appeals for the Sixth Circuit. United States of America vs. The Coca-Cola Company. Judgment. Filed June 13, 1914. Frank O. Loveland, clerk.

OPINION.

(Filed June 13, 1914.)

1929 No. 2415.

United States Circuit Court of Appeals, Sixth Circuit.

UNITED STATES OF AMERICA, PLAINTIFF IN ERROR,
v.
FORTY BARRELS AND TWENTY KEGS OF COCA COLA, defendant in error. } Error from the District Court of the United States for the Eastern District of Tennessee.

Submitted November 10, 1913. Decided June 13, 1914.

Before Warrington, Knappen, and Denison, circuit pudges.

DENISON, Circuit Judge. This proceeding was brought by the United States to condemn a quantity of syrup called Coca Cola. Forfeiture was claimed under the pure food law (34 U. S. S. L., 768), because the syrup was said to be adulterated and misbranded. The case was tried at great length before a jury; at the conclusion of the trial, the Government withdrew certain issues, and upon the two remaining matters, the court instructed a verdict for the Coca Cola Company, the claimant of the property. The sole question presented by this writ of error is whether there was any evidence tending to show that the article was either adulterated or misbranded within the prohibition of the act. The facts presented and the

questions involved are so well set out by the district judge in his carefully prepared opinion (191 Fed. Rep., 431)[1] that we refrain from further preliminary statement. The sections and clauses of the act which it seems may have some bearing on the question before us are given in the margin.[2]

1930 In applying a statute to particular facts and where it becomes necessary to construe language to which opposing sides give different meanings, it is vital to have in mind the essential scope and purpose of the act. The present case well illustrates the importance of this consideration. Much of the Government's contention as to the extent of the prohibitions here found rests upon the theory that Congress intended to protect the public health by preventing (to the extent of the constitutional power resting in the commerce clause) the sale or transportation of deleterious foods. The opposing contention denies this broad purpose and concedes only the intent to prevent any fraud or deception in the sale of foods. The title to the act is broad enough to support the Government's utmost claim as to general purpose. It is, "An act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, etc." If there was nothing in the

[1] The parts of the libel voluntarily dismissed by the Government were those matters numbered 4 and 5 in the district judge's opinion; the statement on page 440 of 191 Fed. Rep. is erroneous in this respect.

[2] SEC. 6. * * * the term "food," as used herein, shall include all articles used for food, drink, confectionery or condiments, by man or other animals, whether simple, mixed or compound.

SEC. 7. That, for the purposes of this act, an article shall be deemed to be adulterated * * * in the case of food * * * third, if any valuable constituent of the article has been wholly or in part abstracted * * * fifth, if it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health.

SEC. 8. That the term "misbranded" as used herein, shall apply to all drugs or articles of food or articles which enter into the composition of food, the package or label of which shall bear any statement, design or device regarding such article or ingredients or substance contained therein which shall be false or misleading in any particular * * * that for the purposes of this act, an article shall also be deemed to be misbranded * * * in the case of food: First, if it be in imitation of or offered for sale under the distinctive name of another article. Second, if it be labelled or branded so as to deceive or mislead the purchaser * * * or if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, heroin, alpha or beta eucane, chloroform, cannabis indica, chloral hydrate or acetanilid or any derivative or proportion of any such substances contained therein * * * Fourth, if the package containing it or its label shall bear any statement, design or device regarding the ingredients or the substance contained therein, which statement, design or device shall be false or misleading in any particular: provided, that an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases: First, in the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food under their own distinctive names and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced. Second, * * * and provided further, that nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their formulas, excepting so far as the provisions of this act may require to secure freedom from adulteration or misbranding."

body of the act expressly prohibiting the sale of deleterious food, qua deleterious, this title would furnish some reason for expanding in that direction any terms of prohibition there might be, ambiguous enough to permit the implication (Goodlett v. L. & N. R. R., 122 U. S., 391, 408); but we find in sec. 11, which relates solely to
1931 importations from foreign countries, an express direction that such importation shall be wholly forbidden if the food is adulterated or misbranded "or is otherwise dangerous to the health of the people of the United States." We have, therefore, a provision which responds to the call of the title in this particular and makes it unnecessary to resort to any otherwise unjustifiable construction for the mere purpose of giving some effect to all parts of the title. With the exception of this clause of sec. 11, every other directly or indirectly prohibitory clause of the act relates to articles which carry the taint of deception and fraud by being adulterated or misbranded. Section 2 prohibits interstate commerce in any article "which is adulterated or misbranded within the meaning of this act" and subsequent clauses of the same section refer to "any such article so adulterated or misbranded within the meaning of this act" and to "any such adulterated or misbranded foods." The expert examination provided for by sec. 4 is to determine "whether such articles are adulterated or misbranded." Section 7 defines when, for the purposes of the act, an article shall be deemed to be adulterated, and sec. 8 defines the term "misbranded" as used in the act, and specifies when, for the purposes of the act, an article shall be deemed to be misbranded. Section 9 prescribes a certain immunity from prosecution when there is a guaranty to the effect that the article is not adulterated or misbranded within the meaning of the act. Section 10 provides for the seizure and forfeiture of the offending articles, but its effect is limited to an article which is adulterated or misbranded within the meaning of the act. A subsequent clause of sec. 10 furnishes some superficial support for the broader theory of the purpose of the act by providing for the disposition of the offending article if it "is condemned as being adulterated or misbranded or of a poisonous or deleterious character within the meaning of this act"; but this support is only superficial, because the power to condemn, given by the first part of sec. 10, rests on the finding that the article is "adulterated or misbranded." This general reference to a poisonous or deleterious character as ground of condemnation must be to instances where that character, by incorporation into the article, causes the fatal adulteration or misbranding. Considering all these parts of the act, together with its title, we can not doubt that, so far as its general purpose and intent furnish any aid for interpretation, that general purpose and intent must be deemed to be the prevention of fraud and deception, so that the purchaser can get the thing he
1932 has a right to suppose he is getting, rather than the protection of the public health to the extent of preventing the purchaser from deliberately and intentionally buying a particular food which is what it purports to be, even though a jury might think it "deleteri-

ous." If argument were needed to sustain this conclusion, it could be found in the provisions as to drugs. Foods and drugs are put on the same basis throughout, save as to matters of definition, and some detailed requirements. There can be no room to suppose that the act was intended to prohibit broadly the sale of all deleterious foods and not to prohibit with equal breadth the sale of all poisonous drugs. The latter supposition is impossible; and so the former can not be accepted. Further support will be found in the provisions which, by necessary implication, permit the sale of foods containing cocaine, morphine, and the like, provided the purchaser is properly advised of the contents. These views of the general purpose of the act have been accepted by the decisions, so far as they go (Savage v. Jones, 225 U. S., 501, 533–5; McDermott v. Wisconsin, 228 U. S., 115, 131; United States v. Lexington Co., 232 U. S., 399, 409).

The general language of the court in the last-cited case that "the statute was intended to protect the public health from possible injury" is not at all inconsistent with the view we have expressed, because that language is used with reference to adulterations and the addition to known foods of injurious elements. The very word "adulterated" imports fraud and deception; it implies that the article is not what is purports to be.

Under the statement of facts, it is clear that the only question arising under sec. 7 is whether the caffeine in the Coca Cola is an "added poisonous or other added deleterious ingredient which may render such article injurious to health," and, under the assumption made by the district judge, of which the Government can not complain, and which we here adopt, but only for the purposes of this opinion—i. e., that there was evidence requiring submission to the jury to the effect that caffeine is a poisonous or deleterious ingredient which may render the Coca Cola injurious to health—it is equally clear that the turning point is whether it can be said or whether a jury could be permitted to say that the caffeine was "added" within the meaning of this clause.

It is impossible intelligently to conceive the meaning of "added," unless we suppose a base upon which the addition is placed, and we at once meet the question: If caffeine is the addition, what is
1933 the base? For fifteen years before the passage of the act Coca Cola had been an existing article of food (within the statutory definition of "food") and in the latter ten years of that period it had been one of the most widely known and used articles of its general class. It was a compound; it had no distinctive base (unless water, by reason of its larger proportion); it was made up of water, sugar, caffeine, phosphoric acid, glycerine, lime juice, coloring matter, flavoring matter, and "merchandise No. 5." Each of these elements is more or less important; there seems to be no method of determining their relative importance, but if any one may be rejected as comparatively negligible or secondary or noncharacteristic, that one is not caffeine. In the manufacturing process water and sugar are boiled to make a syrup; this boiling is repeated, then caffeine is "added,"

and then the syrup is boiled once or twice more; the syrup is then put into a cooling tank and then into a mixing tank, in which the remainder of the process is carried on and in which the other elements become part of the ultimate combination. It is plain as may be that without caffeine the mixture would not be Coca Cola, and the purchaser who had been using it in its standard form fifteen years when the act was passed and who might then buy an article of the same name which did not contain any caffeine would rightfully think that he was deceived, and yet it is said that the act intended to prevent misleading the public is violated unless the public is thus misled.

It is another form of the same thought to say that the mere use of the word "adulterate" or "added" implies the existence of a standard, and it is a contradiction in terms to say that the use of an element necessary to constitute the standard is an adulteration of or addition to the standard, but to this contradiction the argument for the Government necessarily leads. So, further, we find that clause 3 of that division of sec. 7 relating to foods declares adulteration if any valuable constituent has been abstracted. Caffeine is a valuable constituent. If it is omitted the article is adulterated, and if it is included the article is adulterated. We must break clause 3 to keep clause 5.

It is urged that in case of a compound article each element is, in a proper sense, "added," and so, if any element is deleterious, it is an "added deleterious ingredient." This position not only depends, in part, upon what we have thought an erroneous view of the general purpose of the statute, but it destroys all force in the word "added" and gives clause 5 of that part of sec. 7 relating to food pre-
1934 cisely the same meaning as if it read "if it contain any poisonous or other deleterious ingredient, etc." The deliberate and careful insertion of the word "added" before the word "poisonous" and again before the word "deleterious," while the word is omitted in the preceding almost identical clause relating to confectionery, can not be treated as accidental or meaningless. So to do would violate the settled rule of construction which requires us to "give full effect to all the words in their ordinary sense" (Bend v. Hoyt, 13 Pet., 263), and requires that "signification and effect shall, if possible, be carried to every word" (Washington Co. v. Hoffman, 101 U. S., 112, 115), and declares it the "duty of the court to give effect, if possible, to every clause and word of a statute, avoiding, if it may be, any construction which implies that the legislature was ignorant of the meaning of the language it employed" (Montclair v. Ramsdell, 107 U. S., 147, 152).

Again, it is urged that the true test whether the deleterious ingredient is "added" is whether this ingredient is in its natuaral or in an artificial form. This criterion is supposed to find support in statements made during the congressional rebates and in the well-known fact that many natural articles of food, like fruits, contain elements which in the combination formed by the complete fruit are not mate-

rially harmful, but which, when extracted and administered separately, may be injurious. This criterion may often be a useful aid in applying and interpreting the statute, but to apply it as a hard and fast rule where artificially compounded foods are under consideration comes to saying, in the case before us, that if coffee berries or tea leaves, or, we take it, the complete extract of coffee berries or tea leaves, containing the amount of caffeine now in question, were put into the compound in its manufacture, there would be no violation of the law, but that if the caffeine, and that only, which was in these same coffee berries or tea leaves or in some other natural product is put into the syrup the law is broken. Alcohol surely might be considered a "deleterious ingredient" if caffeine may be, but can we suppose that a compound food would be obnoxious to this law if it contained five per cent of alcohol purchased in the market ready distilled and yet that a compound otherwise the same would be within the approval of the law though it contained twenty-five per cent of alcohol distilled from grain during the process of making the compound? There has been much controversy whether "blended whiskey" could be sold under that name, but it has never been thought
1935 to be forbidden merely because its alcohol was an "added" ingredient. Many wines are "fortified" by adding alcohol, and these may be obnoxious to the law for other reasons; but if the theory now under consideration is correct, they could not be sold at all, no matter how labeled. This theory must even lead us to say that if a ground or pulverized coffee or a coffee extract is so deficient in caffeine as to be below standard, the law is violated by adding from another source caffeine enough to make the coffee of full normal strength, or to say that it is a vital distinction whether the citric acid contained in any familiar and popular acid beverage is at the time of compounding squeezed from a lemon or poured from a bottle. We can not follow the argument which brings us to those results. Not only is it without basis in the statute, but it lacks inherent cogency.

We get from sec. 8 some help on the proper meaning of the phrase "added poisonous or deleterious ingredient," because, unquestionably, the two sections must be construed together and the same phrase should have the same construction in each. The proviso of the fourth paragraph of that part of sec. 8 relating to food seems to be drawn with express reference to situations like the present. Congress must have known that many proprietary articles of food and drugs were upon the market under proprietary or trade names, and Congress thought fit to provide that these things should not be deemed to be adulterated unless any deleterious ingredient contained therein was "added." This recognizes somewhat more expressly than is done by sec. 7 the thought that the necessity of a standard before there can be any adulteration applies as well to compounds as to simple foods, and then avoids future difficulties in application by providing that the compound article, in its distinctive and known form, should be the standard.

We do not overlook the argument that the act makes no distinction between compounds known at its date and those thereafter devised, and so that the construction which prevents an inherent element from being considered as "added" leaves the manufacturer at liberty to use any poison he pleases in making up his compound "food," provided only he gives to it and sells it under a distinctive name. This conclusion must, to some extent, be granted; yet it loses most of its apparent force when we remember the real purpose of the act and observe the express direction of the law that the maker of a proprietary food need not disclose its contents if he states the place of manufacture. It would seem a proper provision that if a proprietary food contains any ingredient fairly subject to be called deleterious, the maker should disclose on the label its presence and its extent, just as is required in numerous specific instances; but we can not make such a law. On the other hand, it is difficult to suppose that Congress intended absolutely to forbid the use in any compound of any element that a jury might later call "deleterious;" but it must be one thing or the other. The prohibition is either absolute or nonexistent. The best-known habit-forming drugs are selected, and implied permission is given to allow their use in compounding products for sale, provided they are named on the label; but as to the great mass of other food and drug elements which are undoubtedly deleterious if used to excess, there is no provision for naming them on the label. If they are within the definition of "added deleterious ingredient," they may never be used under any conditions or in any quantity that may be injurious to health, even though they are described in the largest of letters on the outside of the package. This way of reading the statute would practically greatly impede the progress of synthetic chemistry in foods, and we think it distinctly more unreasonable than it is to suppose that Congress, having selected and regulated the use of those things known to be particularly dangerous, thought best not wholly to forbid at that time other things from which no serious danger need be anticipated.

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There is a middle view which is sufficient for the purposes of this case and which will recognize the composite meaning of "added deleterious," rather than the separate meaning of each word. This view is that in using the word "added" with reference to a possibly deleterious food ingredient, Congress had in mind an addition above and beyond the quantity in which such ingredient was normally found in usual and customary articles of food, and that no such ingredient should be considered as "added" if it was present only in the quantity in which it existed in these common articles of food with which every Member of Congress was familiar and which had generally been thought wholesome. For example: creosote and other products of destructive wood distillation are, independently considered, injurious, but they have always been present in smoked hams. Can the addition of the same preservatives to the same extent to the same meat be something that Congress intended to prohibit? The

boric acid, found in apples, is a preservative. If certain apples which are to be preserved are not up to the maximum in this element, did Congress intend to forbid supplying the deficiency by the same element from another source? Acetic acid may, of course, be injurious, but if, by its use, an artificial vinegar is made which is chemically and in every way equivalent to the natural vinegar familiar to the members of Congress in many compounds, would they have thought of it as a deleterious addition? No example is so clear as the very one here involved. Every Member of Congress had been familiar from childhood with tea and coffee; perhaps most of them drank it. The average cup of coffee contains more than two grains of caffeine; the average cup of tea, one and one-half grains. A glass of Coca Cola, as consumed, contains one and one-fifth grains of caffeine. The chemical qualities and the physiological effects of the caffeine which is in the tea or coffee and of the caffeine which is in the Coca Cola are precisely the same. We are quite convinced that the use in an artificial beverage of a certain element which had been one of its characteristic elements for many years, and when such use was in a less proportion than the same element was known to make up in different natural beverages then in universal use and generally thought wholesome—that such an element so employed could not have been within the meaning of Congress when it chose the words "added deleterious ingredient."

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The question arising under sec. 8—the misbranding section—is to be determined by the proviso under the fourth clause relating to food. Separate reference to the first clause which forbids sale "under the distinctive name of another article" is unnecessary, because the same prohibition is repeated in the proviso under clause four. We have reached the conclusion that Coca Cola does not contain any "added poisonous or deleterious ingredients," and it is undisputed that the labels carry a statement of the place of manufacture. Hence, this proviso declares that Coca Cola shall not be deemed to be adulterated or misbranded if it was or is known as an article of food under its own distinctive name and if it is not in imitation of or offered for sale under the distinctive name of another article. It is an article of food under the definition of the statute. That it was, at the time of the passage of the law and ever since has been, known under its own distinctive name is too clear for question, except as it is said that the adopted name can not be its distinctive name because it is the distincive name of another article. Neither is it said to be an imitation of another article, except as these words also raise the same question whether it is sold under the distinctive name of another article. Coming to that question, and just as on the subject of adulteration we must first find the standard, we here first meet the inquiry: What is the "distinctive name of another article" under which name Coca Cola is sold? The record makes it very clear to us that there is no such other article. No article, except plaintiff's compound, is or ever has been sold "under the distinctive name," Coca Cola. These words constitute and are the distinctive

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name of plaintiff's product, and they are the distinctive name of nothing else. "Coca" is indicative of one article; "cola" is indicative of another, very distinct, but "Coca Cola" was not in 1892 and (save for the general knowledge of plaintiff's article) is not now intelligently descriptive of any combination of the two. It might be medicine, food, or drink; it might be to swallow, smoke, or chew. These associated words as the distinctive name of any substance or combination of substances were unknown until adopted by plaintiff; that "distinctive name" is still unknown as an appellation for any other substance on the market.

The burden put upon the Government to show that Coca Cola is masquerading under the distinctive name of another article is surely more exacting than the burden on one attacking the trade-mark to show that the name is sufficiently misleading as indicating the make-up of the product so that it is an improper trade-mark. We consider the latter question in our opinion this day filed in Nashville Syrup Co. v. Coca Cola Co., and conclude that the name carried no forbidden deception. We need not here repeat that discussion. If that conclusion is correct, it is even more certain that Coca Cola is not guilty of posing "under the distinctive name of another article."

It follows that the judgment below must be affirmed.

1939 PETITION FOR WRIT OF ERROR.

(Filed May 27th, 1915.)

United States Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA, PLAINTIFF IN ERROR, *vs.* FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA Cola Company of Atlanta, Georgia, claimant, defendant in error.	#2415.

Your petitioner, the United States of America, plaintiff in error in the above-entitled cause, respectfully shows that the above-entitled cause is now pending in the United States Circuit Court of Appeals for the Sixth Circuit, and that a judgment has therein been rendered on the 13th day of June, 1914, affirming a judgment of the District Court of the United States for the Southern Division of the Eastern District of Tennessee, in favor of the Coca Cola Company, of Atlanta, Georgia, claimant and intervenor, and that the matter in controversy in said suit exceeds one thousand dollars ($1.000.00), besides costs, and that the jurisdiction of none of the courts above mentioned is or was dependent in anywise upon the opposite parties to
1940 the suit or controversy, being aliens and citizens of the United States or citizens of the different States, and that this cause does not arise under the patent laws nor the revenue laws nor the

criminal laws, and that it is not an admiralty case, and that it is a proper case to be reviewed by the Supreme Court of the United States upon writ of error, and therefore your petitioner would respectfully pray that a writ of error be allowed it in the above-entitled cause directing the clerk of the United States Circuit Court of Appeals for the Sixth Circuit to send the record and proceedings in said cause, with all things concerning the same, to the Supreme Court of the United States in order that the errors complained of in the assignment of errors herewith filed by said plaintiff in error may be allowed, and if error be found corrected according to the laws and customs of the United States.

THE UNITED STATES OF AMERICA,
By LEWIS M. COLEMAN,
United States Attorney for the Eastern District of Tennessee.

The foregoing petition is granted and writ of error allowed as prayed for, without bond.

J. W. WARRINGTON,
Judge of the United States Circuit Court of Appeals for the Sixth Circuit.

MAY 27th, 1915.

1941 ASSIGNMENT OF ERRORS.

(Filed May 27th, 1915.)

United States Circuit Court of Appeals for the Sixth Circuit.

THE UNITED STATES, PLAINTIFF IN ERROR,
vs.
FORTY BARRELS AND TWENTY KEGS OF COCA COLA
(The Coca Cola Company, Claimant, Defendant in Error).

And now comes the plaintiff in error, The United States of America, by its attorney, and says that in the record and proceedings aforesaid of said United States Circuit Court of Appeals for the Sixth Circuit in the above-entitled cause and in the rendition of the final judgment therein manifest error has intervened, to the prejudice of said plaintiff in error, in this, to wit:

First. The said Circuit Court of Appeals erred in entering judgment affirming the action of the District Court of the United States in peremptorily instructing the jury that the seized product was neither adulterated nor misbranded within the meaning of the food & drugs act.

Second. The said Circuit Court of Appeals erred in not re-
1942 versing the said judgment of the United States District Court aforesaid and in not remanding said cause to said District Court for a new trial.

Third. The said Circuit Court of Appeals erred in holding that the product seized was not adulterated, as in the libel averred.

Fourth. The said Circuit Court of Appeals erred in holding and finding that under the evidence in this case "Caffeine," even if it were poisonous or deleterious, was not an "added" ingredient of the food product Coca Cola—and for that reason the product seized was not adulterated within the meaning of the food & drugs act.

Fifth. The said Circuit Court of Appeals erred in its holding, in substance, that the food & drugs act does not prohibit the sale and shipment, in interstate commerce, of a food product, however poisonous or deleterious it may be, if the poisonous or deleterious ingredients are a part of the original formula, as devised by the proprietor.

Sixth. The said Circuit Court of Appeals erred in its conclusion and finding that the general purpose and intent of the food & drugs act, in so far as it relates to interstate sales and transpor-
1943 tation of food products, was the prevention of fraud upon and deception of the purchaser, and not the protection of the public health by prevention of the sale and transportation of poisonous and deleterious foods in interstate commerce, as stated in the caption of the act.

Seventh. The said Circuit Court of Appeals erred in its finding and conclusions that the name "Coca Cola" did not constitute a false and misleading representation of the presence in the product seized of the substances "coca" and "cola" and that said product was not therefore misbranded within the meaning of the food & drugs act.

Eighth. The said Circuit Court of Appeals erred in its finding and conclusions that the product seized was not offered for sale under the distinctive name of the substances "coca" and "cola" and therefore was not misbranded within the meaning of the food & drugs act.

Ninth. The said Circuit Court of Appeals erred in that it construed the food & drugs act as leaving the manufacturer at liberty to use any poison he pleased in making up a compound food for
1944 sale and shipment in interstate commerce, provided only he gives to the compound a distinctive name and sells it under such name.

Tenth. The said Circuit Court of Appeals erred in not finding and holding that the name Coca Cola was false and misleading, because said product contained no coca and but little, if any, cola, while the name Coca Cola indicates the presence, in substantial amounts, of both coca and cola, articles known in commerce and trade, and was therefore misbranded under the terms of the food & drugs act.

Eleventh. There was evidence tending to show that the seized product was both adulterated and misbranded under the terms of said act. Proper issues in this behalf were tendered by the Government and they should have been submitted to a jury. Therefore it was error to affirm the direction of a verdict by the District Court.

Wherefore the said United States of America, plaintiff in error, prays that for the errors aforesaid and other errors appearing in the record of said United States Circuit Court of Appeals for the Sixth

Circuit, in the above-entitled cause, to the prejudice of the plaintiff in error, the said judgment of the said United States Circuit
1945 Court of Appeals for the Sixth Circuit be reversed, annulled, and for naught esteemed, and that said cause be remanded to the United States District Court for the Southern Division of the Eastern District of Tennessee, with instructions to grant a new trial in said cause, or for such further proceedings in said cause as may be determined upon by this honorable court, to the end that justice may be done in the premises.

LEWIS M. COLEMAN,
Attorney for Plaintiff in Error.

1946 UNITED STATES OF AMERICA, *ss:*

The President of the United States to the honorable the judges of the United States Circuit Court of Appeals for the Sixth Circuit, greeting:

Because in the record and proceedings, as also in the rendition of the judgment of a plea which is in the Circuit Court of Appeals before you, or some of you, between the United States of America, plaintiff in error, and Forty Barrels and Twenty Kegs of Coca Cola, the Coca Cola Company, of Atlanta, Georgia, claimant and intervenor, defendant in error, a manifest error has happened to the great damage of the said plaintiff in error, as by its complaint appears; we being willing that error, if any hath been, should be duly corrected, and full and speedy justice done to the parties aforesaid in this behalf, do command you, if judgment be therein given, that then under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same in the said Supreme Court, at Washington, within thirty days from the date hereof, that the record and proceedings aforesaid being inspected the said Supreme Court may cause further to be done therein to correct that error what of right and according to the laws and customs of the United States should be done.

Witness the Honorable Edward D. White, Chief Justice of
1947 the United States, the 27th day of May, in the year of our Lord, one thousand nine hundred and fifteen.

[SEAL.] FRANK O. LOVELAND,
Clerk of the United States Circuit Court of Appeals for the Sixth Circuit.

By ARTHUR B. MUSSMAN,
Deputy, Acting Pursuant to Sec. 125, Judicial Code, After the Death of the Clerk.

Allowed by Hon. John W. Warrington, judge of the United States Circuit Court of Appeals for the Sixth Circuit.

J. W. WARRINGTON,
Judge of the United States Circuit Court of Appeals for the Sixth Circuit.

May 27th, 1915.

United States Circuit Court of Appeals for the Sixth Circuit.

In pursuance of the command of the within writ of error I, Frank O. Loveland, clerk of the United States Circuit Court of Appeals for the Sixth Circuit, do herewith transmit under the seal of said court a true copy of the record and of the assignment of errors, and of all proceedings in the cause and matter in said writ of error stated.

Witness my official signature and the seal of said court, at Cincinnati, Ohio, in said circuit, this 27th day of May, A. D. 1915, and in the 139th year of the independence of the United States of America.

[SEAL.] FRANK O. LOVELAND,
Clerk United States Circuit Court of Appeals,
for the Sixth Circuit.
By ARTHUR B. MUSSMAN,
Deputy, Acting Pursuant to Section 125, Judicial Code,
After the Death of the Clerk.

1948 (Stamped:) Filed May 27, 1915. Frank O. Loveland, clerk.

1949 United States Circuit Court of Appeals for the Sixth Circuit.

I, Frank O. Loveland, clerk of the United States Circuit Court of Appeals for the Sixth Circuit, do hereby certify that the foregoing is a true and correct copy of the record and of the assignment of errors and of all proceedings concerning the same, together with the original writ of error, in the case of United States of America vs. The Coca Cola Company, No. 2415, as the same remains upon the files and records of said United States Circuit Court of Appeals for the Sixth Circuit, and of the whole thereof.

In testimony whereof I have hereunto subscribed my name and affixed the seal of said court at the city of Cincinnati, Ohio, this 27th day of May, A. D. 1915.

[SEAL.] FRANK O. LOVELAND,
Clerk of the United States Circuit Court of Appeals
for the Sixth Circuit.
By ARTHUR B. MUSSMAN,
Deputy, Acting Pursuant to Sec. 125, Judicial Code,
After the Death of the Clerk.

1950 UNITED STATES OF AMERICA, *ss:*

The President of the United States to the Coca Cola Company, claimant and intervenor of Forty Barrels and Twenty Kegs of Coca Cola, greeting:

You are hereby cited and admonished to be and appear before the Supreme Court of the United States, to be holden at Washington, within thirty days from the date hereof, pursuant to a writ of error filed in the clerk's office of the United States Circuit Court of Appeals for the Sixth Circuit, wherein the United States of America is plain-

tiff in error and you are defendant in error, to show cause, if any there be, why the judgment rendered against the said plaintiff in error, as in the said writ of error mentioned, should not be corrected and why speedy justice should not be done to the parties in that behalf.

Witness the honorable John W. Warrington, judge of the United States Circuit Court of Appeals for the Sixth Circuit, this 27th day of May, in the year of our Lord one thousand nine hundred and fifteen.

J. W. WARRINGTON.

Copy of writ served on us this 28th day of May, 1915.

SIZER, CHAMBERT & CHAMBERT,
Attorney for the Coca Cola Company, of Atlanta, Georgia, Intervenor and Claimant of Forty Barrels and Twenty Kegs of Coca Cola.

1951 In the Supreme Court of the United States, October Term, 1914.

UNITED STATES *v.* FORTY BARRELS AND TWENTY KEGS OF COCA COLA.	Writ of Error to the Circuit Court of Appeals for the Sixth Circuit.

UNITED STATES OF AMERICA, *District of Columbia, ss:*

Before me, a notary public, personally appeared the undersigned, Andrew J. McIntyre, in the District aforesaid, who, being duly sworn, deposes and says:

I am an inspector of the Bureau of Chemistry of the United States Department of Agriculture and am acquainted with the value of the Coca Cola which is the matter in controversy in this case. Its total value at the time of seizure was approximately twenty-five hundred dollars ($2,500.00).

From examinations made of samples of this syrup I am of the opinion that its value on June 13, 1914, exceeded one thousand dollars ($1,000.00) and was about two thousand dollars ($2,000.00). I am further of the opinion that its value at the present time is approximately the same, to wit: about two thousand dollars ($2,000.00).

ANDREW J. MCINTYRE.

Subscribed and sworn to before me at Washington, D. C., this twenty-ninth day of May, 1915.

[SEAL.]

J. S. G. GALLAGHER,
Notary Public.

My commission expires April 6, 1918.

(Indorsement on cover:) File No. 24845. U. S. Circuit Court Appeals, 6th Circuit. Term No. 562. The United States, plaintiff in error, vs. Forty Barrels and Twenty Kegs of Coca Cola, The Coca Cola Company of Atlanta, Georgia, claimant and intervenor. Filed July 15th, 1915. File No. 24845.

In the Supreme Court of the United States.

OCTOBER TERM, 1915.

THE UNITED STATES, PLAINTIFF IN ERROR,
v.
FORTY BARRELS AND TWENTY KEGS OF COCA-COLA. } No. 562.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

MOTION BY THE UNITED STATES TO ADVANCE.

Comes now the Solicitor General and respectfully moves the court to advance the above-entitled cause for hearing on a day convenient to the court.

The United States filed an original and an amended libel in the District Court of the United States for the Eastern District of Tennessee under the Food and Drugs Act of June 30, 1906, 34 Stat. 768, to condemn a quantity of "Coca-Cola" on the grounds that it was adulterated and misbranded. The Coca-Cola Company intervened and filed a claim to the libeled property. The trial judge directed a verdict for the claimant and entered judgment dismissing the libels (191 Fed. 431, 440), which judgment was affirmed by the Circuit Court of Appeals for

the Sixth Circuit (215 Fed. 535, 544). From the latter judgment the United States have sued out a writ of error from this court.

QUESTIONS PRESENTED.

1. Is a compound food with a distinctive name adulterated under the act, if one of its ingredients is a poisonous or deleterious substance which may render such article injurious to health and which, though required by the formula of that particular compound, is foreign to and not normally found in foods of like character?

2. Is a compound food misbranded under the act if its name, though not for many years used as the distinctive name of any other food, is composed of the names of two articles which are present in unsubstantial amounts, if at all?

These questions are of importance not only to the general public, but also to the Department of Agriculture and the Department of Justice in prosecuting future violations of the Food and Drugs Act, and for that reason an early determination of the same by this court is desirable.

Opposing counsel concur.

JOHN W. DAVIS,
Solicitor General.

DECEMBER, 1915.

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In the Supreme Court of the United States.

OCTOBER TERM, 1915.

THE UNITED STATES, PLAINTIFF IN ERROR,
v.
FORTY BARRELS AND TWENTY KEGS OF COCA COLA, THE COCA COLA COMPANY, OF ATLANTA, GEORGIA, CLAIMANT. } No. 562.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

BRIEF FOR THE UNITED STATES.

STATEMENT OF CASE.

This is a libel brought in the District Court of the United States for the Eastern District of Tennessee under the Food and Drugs Act of June 30, 1906, c. 3915 (34 Stat. 768), to condemn a quantity of Coca Cola, shipped from Atlanta, Ga., to Chattanooga, Tenn., on the grounds that it was adulterated and misbranded. The Coca Cola Company intervened and filed a claim to the property. The trial judge directed a verdict for the claimant (R. 1903, 191 Fed. 431), and the judgment on the verdict was affirmed by the Circuit Court of Appeals (R. 1926, 215 Fed. 535). The case is here upon writ of error.

STATEMENT OF FACTS.

Coca Cola, an article of food within the meaning of the Food and Drugs Act, is a soda-fountain sirup or base for soft drinks (R. 713), one ingredient of which is caffeine. This ingredient, in the form of pure caffeine, is added to the sirup during the process of manufacture (R. 732, 744). There was evidence to the effect that the caffeine is injurious to the health of children and nervous persons, many of whom drink Coca Cola (R. 266, 382), and also to the effect that it may render the drink injurious to the health of all consumers (R. 372, 459, 507, 508, 528, 529).

The District Court assumed, as did also the Circuit Court of Appeals for the purposes of its opinion, "that there was evidence requiring submission to the jury to the effect that caffeine is a poisonous or deleterious ingredient which may render the Coca Cola injurious to health" (215 Fed. 535, 540); and each court based its decision, on the count for adulteration, wholly upon the ground that the caffeine was not an "added" ingredient (191 Fed. 431, 433; 215 Fed. 535, 540).

The name of the drink was originally "Coca-Cola Syrup and Extract," shortened to "Coca Cola" (R. 714), and under the latter name it has been sold for over 20 years. Coca and cola are articles known to the market under these distinctive names (R. 175, 176, 202, 203, 264, 778, 789, 1815). These articles are present, according to claimant's evidence, in the proportion of one part in about 5,300 parts of the sirup (R. 1773–1776, 1806), or in 37,000 parts of the drink

(R. 752, 753). The evidence showed that any coca used lacks the odor, flavor, and characteristic properties of coca (R. 178, 803, 1778, 1785, 1794), and tended to prove that there is not enough coca or cola present to affect at all the odor or flavor of the drink (R. 1719, 1776). There was, also, evidence to the effect that the Coca Cola seized contained no coca and little, if any, cola (R. 164, 637), and the trial court assumed for the purposes of its decision "that there may be a conflict in the evidence as to whether or not there is contained in 'Coca Cola' any portion of the leaves of the coca plant or any substance or quality derived therefrom to any material degree" (191 Fed. 431, 438–439). The court held it was not necessary to submit this issue to the jury, since, in its opinion, independently of this question of fact, verdict should be directed for claimant on the count for misbranding, because, as stated by the Circuit Court of Appeals in affirming this judgment, the name Coca Cola "is not now intelligently descriptive of any combination of the two"; that is, of coca and cola. (215 Fed. 535, 544.)

SPECIFICATION OF ERRORS.

The assignments of error appear on pages 1935 to 1937 of the record. In substance, they charge: That the Court of Appeals erred in affirming the direction of verdict in favor of defendant; in holding, as a matter of law, that the caffeine in Coca Cola is not, within the meaning of the Food and Drugs Act, an added ingredient; in so construing the act as to permit the manufacturer to use any poison whatsoever

in a compound food, provided only it is given a distinctive name and the poison is an ingredient of the original formula; and in holding that the product offered for sale under the name Coca Cola was not misbranded, though containing no coca and but little, if any, cola.

QUESTIONS PRESENTED.

The questions presented, therefore, are:

I. Is a compound food with a distinctive name adulterated under the act, if it contain any poisonous or other deleterious ingredients which may render such article injurious to health, other than a food product which, in the combination found in nature, contains a poison?

II. Is a compound food misbranded under the act if its name, though not used as the distinctive name of any other article, is composed of the names of two separate articles which are present in the food in unsubstantial amounts, if at all?

ARGUMENT.

Section 2 of the Food and Drugs Act prohibits the shipment in interstate commerce of any article of food or drugs which is adulterated or misbranded within the meaning of the act.

The libel contains one count alleging that the Coca Cola seized was adulterated, and another that it was misbranded within the meaning of the statute. (R. pp. 25–28.)

The subject is presented in its two phases under the subheads, adulteration and misbranding.

I.

ADULTERATION.

The count for adulteration raises the issue as to whether the caffeine in Coca Cola is an added ingredient within the meaning of section 7 of the act, which provides:

> SEC. 7. That for the purposes of this act an article shall be deemed to be adulterated: * * *
>
> In the case of food: * * *
>
> First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.
>
> Second. If any substance has been substituted wholly or in part for the article.
>
> Third. If any valuable constituent of the article has been wholly or in part abstracted.
>
> Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.
>
> Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health: *Provided*, That when in the preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package, the provisions of this act shall be construed as applying only when said products are ready for consumption.

The courts below, assuming for the purposes of their judgments that the contested question as to whether the caffeine in Coca Cola was poisonous or deleterious was for the jury, held, as a matter of law, that the caffeine was not an "added" ingredient, and therefore its presence would not render Coca Cola "adulterated," whether the caffeine was poisonous or not. The basis of this decision was the assumption that none of the ingredients required by the formula of a compound food is an "added" ingredient, provided only the food has a distinctive name.

The startling result of such an interpretation of the clause is thus expressed by the Circuit Court of Appeals:

> We do not overlook the argument that the act makes no distinction between compounds known at its date and those thereafter devised, and so that the construction which prevents an inherent element from being considered as "added" leaves the manufacturer at liberty to use any poison he pleases in making up his compound "food," provided only he gives to it and sells it under a distinctive name. (215 Fed. 535, 542.)

PURPOSE OF THE ACT.

This construction renders the act wholly inadequate to accomplish the purposes for which it was passed. Indeed, the vice of the holding is due to a misconception of its purposes, which the court said was "vital to have in mind." It held that the—

> *general purpose and intent* must be deemed to be the *prevention of fraud and deception*, so

> that the purchaser can get the thing he has a right to suppose he is getting, *rather than the protection of the public health* to the extent of preventing the purchaser from deliberately and intentionally buying a particular food which is what it purports to be, even though a jury might think it "deleterious." [Italics ours.] (215 Fed. 539.)

This construction reflects only one of the purposes of the act, the prevention of fraud, and ignores the other and primary purpose of protecting the public health.

This court, in *United States* v. *Morgan* (222 U. S. 274, 281), referred to the act as "a law passed in the interest of the public health;" and in the Bleached Flour Case said:

> The statute upon its face shows that the *primary purpose* of Congress was to prevent injury to the public health by the sale and transportation in interstate commerce of misbranded and adulterated foods. * * * *As against adulteration, the statute was intended to protect the public health from possible injury by adding to articles of food consumption poisonous and deleterious substances which might render such articles injurious to the health of consumers.* [Italics ours.] (*United States* v. *Lexington Mill & Elevator Co.*, 232 U. S. 399, 409; See also *United States* v. *Antikamnia Company*, 231 U. S. 654, 665.)

The lower Federal courts are practically unanimous in holding with the Circuit Court of Appeals for the Eighth Circuit that—

> the sole purpose of its enactment was (1) to protect purchasers from injurious deceits by

> the sale of inferior for superior articles; and (2) to protect the health of the people by preventing the sale of normally wholesome articles to which have been added substances poisonous or detrimental to health. (*Hall-Baker Grain Co.* v. *United States*, 198 Fed. 614, 616; see also *French Silver Dragée Co.* v. *United States*, 179 Fed. 824, 826; *United States* v. *Johnson*, 177 Fed. 313, 315; *United States* v. *Five Boxes of Asafœtida*, 181 Fed. 561, 565; *United States* v. *Morgan*, 181 Fed. 587, 588; *United States* v. *1950 Boxes of Macaroni*, 181 Fed. 427; *Galt & Co.* v. *United States*, 39 App. D. C. 470, 475.)

The title and various provisions of the act clearly show that it is, as this court has announced it to be, a measure for the protection of the public health.

The title is as follows: "An act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors, and for regulating traffic therein, and for other purposes." (34 Stat. 768.)

> In each of these cases the letter of the act was construed in the light of its spirit and purpose, as indicated by its title no less than by the enacting clauses. The same guiding principle should be adhered to in considering the question now presented. (*Southern Ry. Co.* v. *Crockett*, 234 U. S. 725, 735.)

The principal portions of the act indicating its purposes are: The provision relating to confectionery; the fifth and sixth paragraphs, referring to food, of

section 7; and the following expressions [italics ours] in sections 8, 10, and 11:

> *And provided further*, That nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods *which contain no unwholesome added ingredient* to disclose their trade formulas, etc. (Sec. 8, paragraph second.)
>
> Fourth. If the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular: Provided, That an article of food which does not contain any *added poisonous or deleterious ingredients* shall not be deemed to be adulterated or misbranded in the following cases: (Section 8, paragraph fourth.)
>
> And if such article is condemned as being adulterated or misbranded, *or of a poisonous or deleterious character*, within the meaning of this act, the same shall be disposed of by destruction or sale, etc. (Section 10.)
>
> If it appear from the examination of such samples that any article of food or drug offered to be imported into the United States is adulterated or misbranded within the meaning of this act, or is otherwise dangerous to the health of the people, etc. (Section 11.)

The legislative history also clearly shows that this was primarily a health measure. Senator Heyburn, author of the bill and chairman of the committee which reported it, said:

> It has seemed to the committee in presenting this bill that the *first consideration* was to

> prevent the manufacture of articles that were *deleterious to health* and to prevent the combination of articles that would deceive and defraud the public. [Italics ours.] (40th Cong. Rec., pt. 1, p. 894.)

The report of the committee of the House of Representatives which redrafted the bill recites:

> The bill is what it purports to be, a measure in the interest of honest dealing and wholesome foods. * * * The laboring man or artisan, who knows his own trade, but who may not be an expert in the quality of foods or their imitations or adulterations, is entitled to the protection of the State to the extent that when he purchases an article for the consumption of his family he receives what he pays for, and, further, *to know that the food which he buys and eats shall give him strength and vigor instead of containing some harmful substance or poison which in the end breaks down his health.* [Italics ours.] (H. R. Rept. 2118, 59th Cong., 1st sess. p., 9.)

It is clear, therefore, that the primary purpose of this act was the protection of the public health, and it should be, as it and other remedial statutes have been, construed liberally to accomplish its purpose. (*United States* v. *Antikamnia Chemical Co.*, 231 U. S. 654, 665; *Hipolite Egg Co.* v. *United States*, 220 U. S. 45; *McDermott* v. *Wisconsin*, 228 U. S. 115; *Interstate Commerce Commission* v. *Goodrich Transit Co.*, 224 U. S. 194, 213; *United States* v. *Baltimore & Ohio R. R. Co.*, 225 U. S. 306, 324; *New York, New Haven & Hartford R. R. Co.* v. *Interstate Commerce*

Commission, 200 U. S. 361, 391; *Johnson* v. *Southern Pacific Co.*, 196 U. S. 1; *Southern Railway Co.* v. *Crockett*, 234 U. S. 725, 735.)

CONSTRUCTION OF ACT BY CIRCUIT COURT OF APPEALS.

The narrow interpretation placed upon the act by the Circuit Court of Appeals would render nugatory all provisions relating to adulteration, whether applied to simple or proprietary foods, since by the mere device of adding any ingredient whatsoever to an adulterated simple food and proclaiming a formula and distinctive name therefor the manufacturer could evade the restrictions of the act.

This court assumed in the case of *United States* v. *Lexington Mill & Elevator Co.* (232 U. S. 399) that it was unlawful to transport in interstate commerce flour which contained nitrites enough to make it injurious to health. Under the construction given the act by the Circuit Court of Appeals such flour, though shown to be poisonous to consumers, might freely move in interstate commerce provided its manufacturers gave it the distinctive name "Lexingtonia." Similarly, the macaroni which was condemned in the case of *United States* v. *1,950 Boxes of Macaroni* (181 Fed. 427), because colored with martius yellow, would have, under this construction, escaped condemnation if only a distinctive name had been given to the article and the martius yellow included in its formula.

It is inconceivable that this could have been the purpose of Congress in framing this great remedial

statute; that its authors were fascinated by mere names and satisfied with shadows instead of substance.

> And it needs no argument to demonstrate that the application of the principle of public policy which the statute embodies is to be determined by the substance of things and not by names, for if that were not the case the provisions of the statute would be wholly inefficacious, as names would readily be devised to accomplish such purpose. (*United States* v. *Louisville & Nashville R. R. Co.*, 235 U. S. 314, 326.)

There is nothing in the meaning of the word "added" to demand such a construction, and to so interpret the act will destroy its efficacy.

> Our duty, however, is not to destroy the law but to enforce it, and in doing so to seek to discover the intention of the lawmaker, the wrong intended to be prevented and the remedy designed to be afforded by the enactment of the statute. (*United States* v. *B. & O. R. R. Co.*, 225 U. S. 306, 324.)

The Circuit Court of Appeals felt impelled to its conclusion by its conception of the purposes of the act, which we have shown to be erroneous, and by the supposed necessity of its interpretation in order to give some meaning to the words "added ingredients."

It is submitted that the strained and highly technical construction it gave to these words was not only unnecessary but subversive of the purposes of the law. The meaning of "added" is variable.

A substance foreign to an article may be added to the substance or an ingredient of the substance may be added to its other ingredients. The meaning, therefore, of this rather colorless word, must be ascertained from its associated words and from the intention of Congress. It will be observed from a consideration of the provisions of section 7 of the act that Congress distinguished between the words "substance," in the first and second subheads, and the words "constituent" and "ingredient," in the third and fifth subheads. The Standard Dictionary defines "ingredient" as follows:

> That which is placed in or specifically enters into the constitution of any mixture or compound, or is a component part of any conglomerate; component; part; as, the ingredients of gunpowder are niter, charcoal, and sulphur.

The provision under consideration is as follows:

> SEC. 7. That for the purposes of this act an article shall be deemed to be adulterated:
> * * *
>
> Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health.

By associating the word "added" with the word "ingredient," we must conclude that Congress intended to forbid the addition of a poison whether that poison was called for by the formula of a proprietary food or was a substance foreign to it.

Such intention seems to be clearly indicated by the following excerpt from the last paragraph of section 8:

> *And provided further,* That nothing in this act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this act may require to secure freedom from adulteration or misbranding.

GOVERNMENT'S CONSTRUCTION OF ACT.

The Government submits the following paraphrase of the provision in question, as giving full significance to the words "added ingredient."

> If it contain any poisonous or other deleterious ingredient which may render such article injurious to health, other than a food product which, in the combination found in nature, contains a poison.

Such interpretation permits the addition of a poison in the form and combination found in a natural food product, but not as an extracted element added by man. It gives a real meaning to the word "added," entirely consonant with the intention of Congress, as indicated by the following excerpts from the Congressional Record, and, at the same time, does not render nugatory those provisions of the Act passed for the protection of the public health.

> One of the principal objects of the bill is to prohibit in the manufacture of foods intended for interstate commerce the addition of foreign substances, poisonous or deleterious to

health. The bill does not relate to any natural constituents of food products which are placed in the foods by nature itself. It is well known that in many kinds of foods in their natural state some quantity of poisonous or deleterious ingredients exists. How far these substances may be deleterious to health when the food articles containing them are consumed may be a subject of dispute between the scientists, but the bill reported does not in any way consider that question. If, however, poisonous or deleterious substances are added by man to the food product, then the bill declares the article to be adulterated and forbids interstate traffic. (H. R. Rept., 2118, 59th Cong., 1st sess., pp. 6 and 7.)

The word "added," after very mature consideration by your committee, was adopted because of the fact that there is to be found in nature's products, as she produces them, poisonous substances, to be determined by analysis. Nature has so combined them that they are not a danger or an evil—that is, so long as they are left in the chemical connection in which nature has organized them; but when they are extracted by the artificial processes of chemistry they become a poison. You can extract a poison from grain or its products, and when it is extracted it is a deadly poison; but if you leave that poison as nature embodied it in the original substance it is not a dangerous poison or an active agency of poison at all.

So, in order to avoid the threat that those who produce a perfectly legitimate article from

a natural product might be held liable because the product contained nature's poison it was thought sufficient to provide against the adding of any new substance that was in itself a poison, and thus emphasizing the evils of existing conditions in nature's product. That is the reason the word "added" is in the bill. Fusel oil is a poison. If you extract it, it becomes a single active agency of destruction, but allow it to remain in the combination where nature has placed it, and, while it is nominally a poison, it is a harmless one, or comparatively so. (Senator Heyburn, 40th Cong., Rec., pt. 3, p. 2647.)

Now, this is not a prohibitive section of this statute. It is merely a definition. It says that the mingling of an added poison with the thing itself would constitute an adulteration of it. Well, it probably would, in any event, and the courts probably would hold that to take an article that was, as whisky is when it is distilled, in its natural condition as it comes from the still, and mix anything with it that was of a character that would degrade it or would lessen its value, that would be to adulterate it. But this bill, in order to make that certain in describing what shall constitute the adulteration of these articles, whether it be foods, drugs, or liquors, says that in the case of liquors the article shall be deemed adulterated if it contain any added ingredient of poison. In other words, if you add to the venom of the article itself for destructive purposes, or the capacity of it to injure those who use it. That is the object of introducing the

word "added," because there are many legitimate substances in commerce that contain in their natural condition certain percentages of deleterious substances, poisonous in whole or in part, and this is intended simply to provide that if you add to those substances, no matter what the degree of deleteriousness may be, you have degraded the article to the extent that you have added other poisonous substances to it. That is what it means. It is merely a definition. Other portions of the bill dealing with the subject, so far as prohibition in commerce of these articles is concerned or punishment for engaging in it; but to strike out the word "added" here would be an admission that if a thing contains 5 per cent poison, it would be no offense to add another 5 per cent to it and make it that much more dangerous. (Senator Heyburn, 40th Cong. Rec., pt. 3, p. 2750.)

I will assist the Senator there by an illustration. You can extract poison from tea or from coffee; you can extract poison from any grain; you can extract poison from many fruits; you can extract poison from the pits of almost any fruit. * * * That is one of the poisons existing in nature's composition. * * *

You can not add to them. You make an ordinary dish of any vegetable that is in common use. The poison is in that vegetable, but not in a poisonous state; it is not an active poison; it is simply a condition out of which a poison can be produced. Now, suppose you would say that because you can extract fusel oil from the grain of your breakfast food that you eat every morning, they

> should be permitted to add some other poison to it! Suppose you would say if there is poison in it already it can not do much harm to put in more! Suppose commercial cupidity should tempt someone to add to the dormant poison that is in a hundred things that we consume every day, are they to be permitted to do it? This bill says they shall not do it. (Senator Heyburn, 40th Cong. Rec., pt. 3, p. 2758.)

THE STANDARD, IF ONE REQUIRED.

The Government maintains that the court erred in assuming that the mere use of a distinctive name creates a new class, and that the standard used in determining whether a particular brand of food is adulterated is the sum total of all the elements, whatever they may be, of the particular combination. It is submitted that the standard, if one be necessary, must be something other than the peculiar conglomerate under consideration, and must be the normal constituents of foods of like character.

For example, if the article be a new compound food under the general class "flour," as in the case of *United States* v. *Lexington Mill and Elevator Co.* (232 U. S. 399), then, whether the compound be given a distinctive name or not, the article will be condemned under the act if it contain a poisonous ingredient, not normally found in "flour," in sufficient amount to "render such article injurious to health." So a soft-drink sirup containing a poisonous ingredient is condemned if the element is not one

found ordinarily, and in similar amount, in soft-drink sirups, and the applicability of the statute can not be escaped by merely adopting a distinctive name. (*United States* v. *Mayfield*, 177 Fed. 765; *Commonwealth* v. *Kevin*, 202 Pa. St. 23.) The questions as to what is the general class to which the particular article may be referred and whether the element in question is present in such general class in similar quantity and character, are for the determination of the jury.

However, if we take the formula of a particular article as the standard by which to measure it, that formula must be a constant. The formula of Coca Cola has undergone several changes. The element of the drink from which its name was evidently derived is "Merchandise No. 5." It was at first made simply by passing alcohol through coca and cola with some phosphate of lime. (R. 775, 776.) Among the ingredients secured and included in the drink was cocaine. Upon the termination of a suit against claimant, in 1904, in which the Government showed the presence of cocaine in Coca Cola (R. 1624), it entered into a contract with L. Schaeffer to make Merchandise No. 5 with cocaine eliminated (R. 972, 1625, 1626). Without cocaine the substance is not entitled to the name "coca" (R. 174, 178). This new process removed also the other alkaloids, the chlorophyll, the fatty matter (R. 1319, 1320), and according to the evidence for the Government, the flavoring matters and odors (R. 1778, 1785, 1794).

There is a still more important change. The original formula of Coca Cola required 28 pounds of caffeine to 1,250 gallons of sirup, and the drink was sold with 1 ounce of sirup to 6 ounces of water. In 1898 the claimant began to sell sirup for the bottling trade as well as to soda fountains, and the formula was so changed for the bottled drink as to use relatively more sugar and less caffeine and other ingredients (R. 721). The new formula requires 25, instead of 28, pounds of caffeine to 1,250 gallons of sirup (R. 780), and 1 ounce of sirup to 7, instead of 6, ounces of water (R. 753).

If a change can be made by decreasing by one-quarter the amount of caffeine and eliminating all the characteristics of the little coca used, it may also be made by doubling the amount of caffeine or by introducing cocaine, or by eliminating coca and cola entirely. It would be no more a variation from a standard in the second case than in the first. So the postulate of the court's decision, the existence of a definite standard for Coca Cola, is false.

CAFFEINE IN COCA COLA DELETERIOUS.

The Circuit Court of Appeals and the District Court both assumed that the caffeine in Coca Cola was a poisonous or deleterious ingredient which might render such article injurious to health. The trial judge repeatedly stated there was such a conflict in the evidence as to require the question to be submitted to the jury

(R. 1830, 1831). The assumption of the court in this regard was amply supported by the evidence.

Caffeine is not a food but a poisonous drug (R. 507), and is injurious to health. This was established by numerous witnesses for the Government (R. 283, 400, 404, 459, 478, 507, 528, 531, 589, 658); by recorded instances of deaths from caffeine (R. 243, 244, 1085); by treatises (R. 240, 306, 307, 446, 447, 449, 705, 706, 1077, 1078), including several treatises written by witnesses for the claimant (R. 945, 1088, 1089, 1233, 1358).

Experiments, some of them conducted without reference to this case, showed caffeine is harmful to animals, whether given pure (R. 215, 399, 613, 614) or in the form of Coca Cola sirup (R. 216, 218, 219, 399). Men are even more sensitive to the effects of this drug than are the lower animals (R. 235, 619).

The amount of caffeine in each drink of Coca Cola is a little over one grain (R. 130, 879), more than the therapeutic dose prescribed by the United States Pharmacopœia (R. 478). It may injure anyone (R. 179, 372, 373, 424, 456, 480, 533, 680, 681, 693). It is particularly apt to injure women, nervous persons, and persons of sedentary habits (R. 179, 335, 374, 402, 456, 481, 507, 529). It is certainly harmful to children (R. 179, 402, 480, 530, 958). Claimant admitted in its brief in the Circuit Court of Appeals that—

> Caffeine acts on the human system as a nerve, brain, and muscle stimulant. If used to ex-

> cess, its effects would undoubtedly be injurious to any person; and if used at all by infants and very small children, or persons suffering with certain kinds of disorders, especially those affecting the nervous system, its effects might be injurious (p. 64).

Coca Cola is drunk by all classes of persons, including many children (R. 265, 266, 382, 682, 692, 693, 696, 1489).

Caffeine, besides being harmful, is habit forming, whether taken pure or in Coca Cola (R. 179, 180, 278, 335, 337, 365, 374, 457, 482, 508, 705). Coca Cola is freely consumed at the rate of from two to twenty glasses a day (R. 278, 335, 1281, 1283, 1285, 1293). Its cumulative effect is greater than the effect of a single or occasional drink (R. 481, 616).

II.

MISBRANDING.

The count for misbranding alleged that the label on each package of the product seized, "Delicious and Refreshing Coca Cola," was a representation of the presence therein of the two substances coca and cola; that "Coca Cola" contained no coca and little, if any, cola, yet "was offered for sale under the distinctive name of said two substances coca and cola." (R. 27.)

Section 8 provides, in part, as follows:

> SEC. 8. That the term "misbranded," as used herein, shall apply to all drugs, or articles of food, or articles which enter into

> the composition of food, the package or label of which shall bear any statement, design, or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular, and to any food or drug product which is falsely branded as to the State, Territory, or country in which it is manufactured or produced.
>
> That for the purposes of this Act an article shall also be deemed to be misbranded:
>
> * * * * *
>
> In case of food:
>
> First. If it be an imitation of or offered for sale under the distinctive name of another article.

There was evidence supporting the allegations of the libel that there was no coca and little, if any, cola in Coca Cola, and the Circuit Court of Appeals, for the purposes of its decision, assumed the question of their presence to be for the determination of the jury.

In a companion case, decided on the same day and referred to in the opinion in this case, the court stated that the name "Coca Cola" was "undoubtedly suggestive" (*Nashville Syrup Co.* v. *Coca Cola Co.*, 215 Fed. 527, 533), but held in the present case that to label the article "Coca Cola" was not misbranding, because Coca Cola "at the time of the passage of the law and ever since has been known under its own distinctive name," and that it was not "an imitation of another article, except as these words also raise the same question whether it is sold under the distinctive name of another article." (215 Fed. 535, 543, 544.)

The court further held that the use of the names of two separate articles was not forbidden by the act unless the names of such articles had theretofore been combined into a distinctive name.

The court in this connection say:

> These words constitute and are the distinctive name of claimant's product, and they are the distinctive name of nothing else. "Coca" is indicative of one article; "cola" is indicative of another, very distinct, but "Coca Cola" was not, in 1892, and (save for the general knowledge of plaintiff's article) is not now intelligently descriptive of any combination of the two. (215 Fed. 535, 544.)

The Government maintains that the act forbids the suggestive and misleading use of names of known articles, whether used in combination or not, and whether the deception be about the article itself or its ingredients. (*Steinhardt Bros. & Co.* v. *United States*, 191 Fed. 798.) It is immaterial whether the food is offered for sale "under the distinctive name of another article" or under the distinctive names of two other articles. (Revised Statutes, sec. 1.)

In *Libby, McNeill & Libby* v. *United States*, 210 Fed. 148, the defendants were prosecuted for selling a mixture of condensed milk and sugar under the name "Target Brand of Condensed Skimmed Milk." The Circuit Court of Appeals for the Fourth Circuit stated one of the questions in the case as follows:

> Does the first proviso to section 8 of the act permit the use as a name for a compound

> or mixture intended for food of common words which will to an ordinary man appear to be descriptive, but which, if so understood, will be false and misleading?

The court held that the act does not permit this and affirmed the judgment of conviction.

In *United States* v. *Three Hundred Cases of Mapleine*, N. J. 163, the Government sought to condemn 300 cases of "Crescent Mapleine" on the ground that the name falsely represented the article contained a product of the maple tree. Sanborn, J., in his charge to the jury said:

> The parties who coin the word give it a meaning, and then they send out the label with the word upon it. Now, the question is: Is there anything false in that word, any suggestion of any falsehood in that word, or any suggestion of anything misleading or deceiving in that word?

There was a verdict for the Government. (See also *United States* v. *Morgan*, 181 Fed. 587, affirmed in 222 U. S. 274; *United States* v. *Seven Cases of Buffalo Lithia Water*, Federal Food and Drugs Act and Decisions, p. 697; *Worden* v. *California Fig Syrup Co.*, 187 U. S. 516; *Manhattan Medicine Co.* v. *Wood*, 108 U. S. 218.)

The Insecticide Act of 1910 (c. 191, 36 Stat. 331) was modeled after the Food and Drugs Act and contains the words here under consideration. The decisions give that act the same construction. (*United States* v. *Two Cases of Sulpho-Napthol*, 213 Fed. 519; *United States* v. *Two Cases of Chloro-Naptholeum*, 217 Fed. 477.)

Under a construction permitting the use of a name misleading as to ingredients, provided only it is not unequivocally false as to identity, the act can not reach the commonest sort of fraud. If Coca Cola may be sold without containing a material amount of either coca or cola, then "Chocolate-Vanilla" sirup may be sold without containing either chocolate or vanilla, for each of these names is undoubtedly suggestive, but the combination of the two names has never been used for any distinctive compound.

CONCLUSION.

It is respectfully submitted that the Circuit Court of Appeals erred in their interpretation of the act and in sustaining the direction of a verdict by the trial court. The judgment of the Circuit Court of Appeals should be reversed.

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O

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Supreme Court of the United States

OCTOBER TERM, 1915

No. 562

THE UNITED STATES, PLAINTIFF IN ERROR,

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA-COLA, THE COCA COLA COMPANY OF ATLANTA, GEORGIA, CLAIMANT AND INTERVENOR.

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT

BRIEF FOR THE COCA COLA COMPANY, Claimant.

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JOHNSON-BALLIS CO., ATLANTA

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In the Supreme Court of the United States

OCTOBER TERM, 1915

THE UNITED STATES, PLAINTIFF IN ERROR,

vs.

FORTY BARRELS AND TWENTY KEGS OF COCA-COLA

No. 562

IN ERROR TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT

BRIEF FOR THE COCA-COLA COMPANY CLAIMANT.

(PART I)

STATEMENT.

The article which is the subject matter of the controversy in this case is a syrup manufactured by the claimant, The Coca-Cola Company, of Atlanta, Georgia, and sold and used as a base for soft drinks both at soda fountains and in bottles. The evidence shows that the article contains sugar, water, caffeine, glycerine, lime juice and other flavoring matters.

(See record, page 836)

As used by the consumer, about one ounce of this syrup is taken in a glass mixed with about seven ounces of carbonated water, so that the consumer gets in an eight-ounce glass or bottle of the beverage, about 1.21 grains of caffeine. An ounce contains 480 grains, and therefore, the relative proportion of caffeine to other ingredients in the beverage as usually consumed is about as one to 3838 4-5.

The history of the manufacture and sale of the syrup as shown by the record is as follows:

In the year 1886, Dr. J. S. Pemberton, a pharmacist in Atlanta, Ga., compounded a syrup by a secret formula, which he called "Coca-Cola Syrup and Extract". Pemberton soon transferred the formula, name, label and good will to others; but up to the time of his transfer, he manufactured this syrup and sold it on the market as Coca-Cola, and in the year 1892, The Coca-Cola Company, the claimant in this case, acquired the formula, name, label and goodwill for the product from the persons to whom Pemberton's title had passed, these persons having, while owning same, sold said syrup under said name, and under said formula from the time they acquired the same until they transferred it. In 1892, the claimant, the Coca-Cola Company, registered in the patent office a trademark for the syrup consisting of the name Coca-Cola, and from the date that The Coca-Cola Company acquired said goodwill, name, trademark and formula, said company has manufactured and sold the syrup under the name Coca-Cola, in large and continuously increasing quantities, and the beverage made with it, has become very widely known and popular. Prior to 1898, the syrup was used only in making a fountain beverage,

that is, the syrup and carbonated water were mixed and sold direct from the soda fountain; but in that year, The Coca-Cola Company, made a contract whereby it granted to certain persons the right to use the syrup in the bottled drink, the syrup so used being manufactured by and purchased from the claimant, and being put up in the proportion of one ounce of syrup to seven ounces of carbonated water, in sealed bottles, containing approximately the same amount as the glasses in which it was sold at soda fountains. When this bottling contract was entered into, it was deemed advisable to make a slight modification in the manufacture of the syrup intended for bottling so as to make it slightly heavier or sweeter, and to accomplish this, the proportion of sugar was slightly increased, and the proportion of caffeine was slightly diminished in the syrup which was sold for bottling purposes.

(See Record, p. 836.)

In the manufacture of the syrup in accordance with the formula of J. S. Pemberton, certain extracts from the leaves of the Coca shrub and the nut kernels of the Cola tree were used for the purpose of obtaining a flavor. The ingredient containing these extracts is described and referred to in the record as "Merchandise No. 5." In obtaining the extract of Coca leaves, which went into this ingredient, it was always the object and purpose to eliminate the cocaine which is the chief and characteristic alkaloid found in the Coca leaves, and to use only the decocoanized extract in the syrup; but on or before the year 1902, in the trial of a case brought in Atlanta, Georgia, by The Coca-Cola Company against the United States Internal

Revenue Collector, to recover certain internal revenue taxes, paid under protest, (for which the collector insisted the Coca-Cola Company was liable, and for which the company insisted it was not liable), a witness on behalf of the collector testified that an anlysis which he had made of the syrup disclosed the presence therein of a very slight trace of cocaine, about 1-400 of a grain in one ounce, or 480 grains, of the syrup.

(See Record, pp. 1625, 1688.)

Another witness for the government testified that he was not able to determine any quantity of cocaine, stating that it was a small trace.

(Record, pp. 1653, 1654, 1655.)

Thereupon, the claimant made a contract for the manufacturing of this Merchandise No. 5 with Dr. L. Schaefer, a manufacturing chemist of Maywood, New Jersey, who guaranteed to entirely eliminate all trace of cocaine, and since that time, it is clearly shown that the syrup has contained no cocaine.

In 1905, the claimant again registered the name Coca-Cola as its trade mark, and in the declaration for trade mark, made and sworn to by Asa G. Candler, President of the claimant, it was averred that said name had been "in actual use as a trade mark of the applicant for more than ten years next preceding the passage of the Act of February 20th, 1905, and that to the best of his knowledge and belief, such use had been exclusive."

(Record, p. 1434.)

The record abundantly shows that the syrup has been made under the same formula (the cocaine not being a part of the formula) ever since it was origi-

nally compounded by J. S. Pemberton; that it has always been made, sold and consumed under the name Coca-Cola; and that when consumers, retailers and wholesalers call for Coca-Cola, they expect and intend to receive the product manufactured by The Coca-Cola Company.

(See Record, pp. 714, 1414, 1469, 1490, 1496, 1504, 1508, 1515, 1519, 1536 1581.
Also, stipulation, pp. 1588, 1590, 1591, and 1592.)

From the above testimony, and the admissions in the libel, there can be no dispute that this same product has been on the market under the name Coca-Cola for over twenty years; and that by "Coca-Cola" is meant the product of claimant, and that the exclusive right of the claimant to the use of that name in connection with said syrup, has been established by adjudications in various courts, and has been generally acquiesced in by the public.

(See testimony of John S. Candler, Record, pp. 712, et seq;

Testimony of Charles H. Candler, Record, pp. 742, et seq;

Record, pp. 822-835; 1280-1312.)

The libel or information under which the forty barrels and twenty kegs of syrup involved in the case were seized, charged that the syrup was adulterated and also, that it was misbranded, in violation of the Food and Drugs Act, June 30th, 1906.

It was averred:

1. That the syrup was a food product, and that it contained "an added ingredient, caffeine," which was

"a poisonous ingredient," and "a deleterious ingredient," which "may render and might have rendered said food product injurious to health."

2. That said food product "had been mixed, colored, powdered, coated, or stained," by the use of caramel, coloring substances, flavors, &c., "whereby damage or inferiority of the mixture" was concealed.

3. That the name "Coca-Cola" as applied to the product in question, was "a representation of the presence in said food product of the substances Coca and Cola"; that there were "such substances popularly known as Coca and Cola and under their own distinctive names, but said food product, Coca-Cola, contained no Coca, and little, if any Cola"; and that therefore, said product was (a) an imitation of the substances Coca and Cola, and (b), was offered for sale under the distinctive name of said two substances Coca and Cola.

4. That the labels on the barrels and kegs seized bore "a pictorial design of Coca leaves and Cola nuts," which was "a suggestion and representation" of the presence of Coca and Cola in said product, which representation and suggestion was "false and misleading."

(Record, pp. 25-28.)

The claimant answered the foregoing charges as follows:

1. It admitted that the product contained as one of its ingredients "a small proportion of caffeine," but denied that the caffeine was either an added ingredient, or a poisonous or a deleterious ingredient

"which may render or might have rendered said food product injurious to health."

2. It denied "each and every averment" in that paragraph of the information charging that the product was mixed, colored, etc., "whereby damage or inferiority" was concealed.

3. It denied that the name "Coca-Cola" as used on the labels on the packages containing said product, was a representation of the presence in said product of the substances Coca and Cola, and denied "that there are such substances known as Coca and Cola, under their own distinctive names". And it denied that said product was (a) an imitation of any other article or (b) was offered for sale under the distinctive name of any other article. It averred, however, that said product did contain "certain elements or substances derived from Coca leaves and Cola nuts."

4. It denied that the labels contained "any statements or pictorial designs regarding the ingredients and substances contained" on said product which were "false or misleading in any particular".

5. The answer further averred as follows:

> "That the name of said food product as contained on the labels aforesaid, towit, 'Coca-Cola' is the distinctive name of said product, under which said product is now known and sold, and has been known and sold for more than twenty years past; that said food product is a mixture or compound, which does not contain any added poisonous or deleterious ingredient, and is not an imitation of, or offered for sale under the distinctive name of, any other article; and that said name is accompanied on the same label with a

statement of the places where said article is manufactured or produced;"

wherefore

"said article is not to be deemed adulterated or misbranded under the provisions of said Food and Drugs Act of June 30, 1906."

(Record, pp. 28-30.)

A jury was demanded by the claimant, to try the issues made by the foregoing pleadings, and after the evidence had all been introduced on both sides, the claimant moved the court for peremptory instructions to the jury to return a verdict in favor of the defendant on all the issues. The court ruled on this motion as follows:

"1. Applying the Act as thus construed to the undisputed facts in evidence, I find the facts established without any contradictory evidence, to be: That the name Coca-Cola is a trade name which has for many years been given by the manufacturer to the food product in question, and upon which a trade mark was many years ago obtained; that this food product is an artificial compound used in the preparation of beverages, consisting of a sweet syrup, colored with caramel, with some phosphoric acid, lemon juice and other minor ingredients, with perhaps some ingredients or qualities derived from the coca leaves and cola nuts, which are used to a certain extent in its preparation, after being subjected to a process by which the cocaine and certain other ingredients are extracted, and also containing as an essential ingredient of the compound, caffeine, obtained in the main by chemical extraction from theine; that this compound has been for many years manufactured under a formula prescribing certain definite proportions of such caffeine as one of

its essential ingredients; that for many years as so manufactured and sold it has regularly and habitually contained the same approximate amount of caffeine, being about one and one-fifth grains to each fluid ounce of the syrup, although slightly less caffeine is contained in the syrup prepared for use in bottles than in that prepared for use at soda fountains, and although the percentage of caffeine in each individual container may vary slightly owing to process of manufacture employed, the average caffeine content being, however, substantially as above stated; that for many years this compound containing such caffeine has been sold under this trademark name of 'Coca-Cola' has been extensively advertised under this trademark name, and has under this name become generally known to the trade and to consumers in the United States; that no other article of food or beverage has been either manufactured or sold under the name of 'Coca-Cola'; that it imitates no other article, and is not sold under the distinctive name of any other article and that this name distinguishes this particular product from all other beverages and articles and clearly identifies it as a particular kind and brand of beverage made by its manufacturer and sold under this name, and distinguishes it from all other beverages or food products manufactured and sold by other persons.'

United States vs. Coca-Cola, 191 Fed. Rep., 431, (436).

2. That as "Coca-Cola" was the distinctive name of the product in question, and as the product did not, according to the undisputed evidence, contain any **added** poisonous or deleterious ingredient, "it should not be deemed misbranded, within the meaning of the Food and Drugs Act, in so far as any statement of

(or) suggestion in the name itself is concerned"; because obviously, if the article contains the constituents which are "normally and regularly contained under the distinctive name under which it is sold and under which it is known to the public" the name is not misleading, "but on the contrary serves to directly inform the public that it is the specific article which the public knows under that name and desires to buy." Therefore, he held that the claimant was entitled to peremptory instructions on the charges in the libel that the product involved was (a) an imitation of the substances Coca and Cola, and (b) was offered for sale under the distinctive name of said two substances.

3. On the charges that (a), the product was mixed, colored, etc., so as to conceal damage or inferiority, and (b), the pictorial designs of Coca leaves and Cola nuts on the labels constituted "a suggestion and representation" which was "false and misleading," he held the libellant was entitled to go to the jury, and claimant's motion for peremptory instructions on these issues was overruled.

(Record, pp. 1894-1902.)

United States vs. Coca-Cola, 191 Fed. Rep., 431.

Thereupon counsel for the libellant dismissed the libel without prejudice as to the questions involved in the issues last referred to, and the court then instructed the jury to return a verdict in favor of the claimant, which was done.

(Record, pp. 1902-1903.)

A motion for a new trial having been made on behalf of the libellant and overruled, and the case having been affirmed by the Circuit Court of Appeals, **(United States vs. Coca-Cola,** 215 Fed. Rep., 535), the case has now been brought to this Court.

(PART 11)

In order to clearly understand the questions involved, it becomes necessary at this point to consider:

I.

THE CHARGE IN THE LIBEL ITSELF.

The original libel was filed on the 21st day of October, 1909, and it charged that The Coca-Cola Company transported in interstate commerce a consignment of forty barrels and twenty kegs of a **product** labeled "delicious and refreshing Coca-Cola." It further charged that said **product** as above described is a **food product**, and contains an added ingredient, caffeine, which is a deleterious ingredient, and may render said **food product** injurious to health; that said **food product** does not contain the chief, active prinple of Cola, and that said **food product** was therefore, misbranded; and that said **food product** as aforesaid was manufactured, branded and shipped in violation of law.

(Record, pp. 1 and 2.)

It will be noted that the attachment was levied on "19 barrels of **Coca-Cola,**" and also "18 barrels of said Coca-Cola and on 20 kegs of same."

(Record, p. 5.)

The libel was amended on the 27th day of November, 1909, and it was alleged that **said product** was shipped in violation of the law, and that **said product** contains an added ingredient, caffeine, and that **the product, Coca-Cola** does not contain any cocaine, and that the **product Coca-Cola** leads one to believe, etc.

(See Record, p. 10.)

In this amendment it was also stated that forty barrels and twenty kegs of a product was labeled "Delicious and Refreshing Coca-Cola," and that **said product, which is a food product,** was shipped in violation of the Food and Drugs Act of June 30th, 1906, and that the **product** contains an added ingredient, and that the word Coca used as part of the name of **the product Coca-Cola** leads one to believe that the article contains the active, medicinal agent of the Coca leaves, &c.

(See Record, p. 11.)

The libel was again amended, and the amendment filed on February 3rd, 1910, in which amendment it was alleged that "**The Coca-Cola Co. has for a number of years past, been engaged in and now is engaged in the manufacture and sale of a food product known as Coca-Cola, and that said product was adulterated and misbranded. Said product Coca-Cola is adulterated in this:**

(See Record, pp. 16, 17.)

The libel was again amended, and the amendment was filed for record March 3rd, 1910, in which amendment it was alleged that said barrels and kegs containing **said product Coca-Cola** were misbranded and shipped for sale in violation of the law, and that said **food product Coca-Cola contains no Coca nor Cola, and that said product Coca-Cola** is adulterated in this:

(Record, pp. 19, 20.)

The final amended libel was filed January 6th, 1911, in which it was prayed that seizure be had for the condemnation **of forty barrels and twenty kegs of a certain article of food or food product, purporting and represented to be Coca-Cola.** It was alleged that forty

barrels and twenty kegs **of said food product Coca-Cola** was transported in interstate commerce, and that thus transported for sale, were each and all labeled, and that the forty barrels and twenty kegs remained unloaded, unsold, or in original, unbroken packages, in Chattanooga, and that **said food product** as above described and stated was adulterated under the Act of Congress, and that the **said food product** contained an added deleterious or poisonous ingredient, and further, **that said food product** had been mixed, etc., whereby damage or inferiority of the **food product** Coca-Cola was concealed, **and that said food product Coca-Cola** was misbranded because said **food product Coca-Cola** contained no Coca and little if any Cola.

(Record, pp. 25, 26, 27.)

From a review of the libel originally filed, and the amendments thereto, it appears that the charge in this case was, that a food product Coca-Cola was adulterated and misbranded, within the definition of the two terms "misbranded" and "adulterated," as given under the act of June 30th, 1906.

> "The conclusion thus reached is strengthened by a consideration of the pleadings in this case. In the libel it is alleged that the food product 'Coca-Cola' which it was sought to condemn is adulterated in that it contained an 'added' ingredient, caffeine, which was and is both poisonous and deleterious. Yet the entire proof unquestionably shows that the caffeine contained in the article 'Coca-Cola' is one of its regular, habitual and essential constituents, and that without its presence, that is, if it were de-caffeinized, so to speak, the product would lack one of its essential elements and fail to produce upon the consumers

a characteristic if not the most characteristic effect which is obtained from its use. In short, Coca-Cola without caffeine would not be Coca-Cola, as it is known to the public and would not produce the effect which the Coca-Cola bought by the public under that name produces, and if it were sold as 'Coca-Cola' without containing caffeine, the public buying it under this name would be in fact deceived."

United States vs. Coca-Cola, 191 Fed. Rep., 431, (at 437-438).

It appears further, from the record without dispute, that this food product Coca-Cola, **has always contained caffeine** as one of its ingredients.

(PART III)

THE CONSTRUCTION AND PURPOSE OF THE ACT.

"It is a well settled rule of construction that a statute ought to be so construed that if possible no clause, sentence or word shall be surplus, void or insignificant."

Montclair vs. Ransdell, 107 U. S., 147.

"It is the duty of the courts of justice so to construe all statutes as to give full effect to all the words in their ordinary sense."

Bend vs. Hoyt, 13 Pet., 263.

In construing a statute, every section, provision and clause should be explained by reference to every other, and if possible, every clause and provision shall avail, and have the effect contemplated by the legislature.

"One portion of a statute should not be construed to annul or destroy what has been clearly granted by another. The most general and absolute terms of one section may be qualified and limited by conditions and exceptions contained in another, so that all may stand together."

Peck vs. Jenness, 7th Howard, 612, 623.

In **U. S. vs. Lexington Mill & Elevator Co.,** 232 U. S., 399, (409), the Court says:

"The statute upon its face shows, that the primary purpose of Congress was to prevent injury to the public health by the sale and transportation in interstate commerce of misbranded and adulterated foods. The legislation, as against misbranding, intended to make it possible that the consumer should know that an article purchased was what it purported to be; that it might

be bought for what it really was, and not upon misrepresentations as to character and quality. As against adulteration, the statute was intended to protect the public health from possible injury by adding to articles of food consumption, poisonous and deleterious substances which might render such articles injurious to the health of consumers.

"If this purpose has been effected by plain and unambiguous language, and the Act is within the power of Congress, the only duty of the courts is to give it effect, according to its terms. This principle has been frequently recognized in this court (**Lake County vs. Rollins,** 130 U. S., 662, 670):

> 'Where a law is expressed in plain and unambiguous terms, whether those terms are general or limited, the legislature should be intended to mean what they have plainly expressed, and consequently, no room is left for construction.'

"(**Hamilton vs. Rathbone,** 175 U. S., 414):

> 'The cases are so numerous in this court to the effect that the province of construction lies wholly within the domain of ambiguity, that an extended review of them is quite unnecessary.'

> "Furthermore, all the words used in the statute should be given their proper signification and effect.

"In **Washington Market Co. vs. Hoffman,** 101 U. S., 112, Mr. Justice Strong said:

> 'We are not at liberty to construe any statute so as to deny effect to any part of its language. It is a cardinal rule of statutory

construction that significance and effect shall, if possible, be accorded to every word. As early as in Bacon's Abridgement, Section 2, it was said that, " 'A statute ought, upon the whole, to be so construed, that, if it can be prevented, no clause, sentence or word shall be superfluous, void or insignificant.' " This rule has been repeated innumerable times.'

"Applying these well-known principles in considering this statute, we find that the 5th Subdivision of Section VII provides that food shall be deemed to be adulterated, 'If it contain any added poisonous or other added deleterious ingredients which may render such article injurious to health.' The instruction of the trial court permitted this statute to be read without the final and qualifying words, concerning the effect of the article upon health. If Congress had so intended, the provision would have stopped with the condemnation of food which contained 'any added poisonous, or other added deleterious ingredient.' In other words, the first and familiar consideration is that, if Congress had intended to enact the statute in that form, it would have done so by choice of apt words to express that intent. It did not do so, but only condemned food containing 'an added poisonous or other added deleterious ingredient' **when such addition** might render the article of food injurious to health. Congress has here, in this statute, with its penalties and forfeitures, definitely outlined its inhibition against a particular class of adulteration."

See also,

U. S. vs. Antikamnia Chemical Co., 231 U. S. 654, 665.

"The title and the act itself, when carefully read and considered, demonstrated the fact that

the sole purpose of its enactment was, (1) to protect purchasers from ingenious deceits by the sale of inferior for superior articles; (2) to protect the health of the people by preventing the sale of normally wholesome articles to which have been added substances poisonous or detrimental to health."

Hall-Baker Grain Co. vs. U. S. 198 Fed., 614, 616.

(PART IV)

THE SCOPE AND PROVISIONS OF THE FOOD AND DRUGS ACT OF JUNE 30TH 1906.

The Act in question is entitled:

"An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines and liquors and for regulating traffic therein and for other purposes."

The **first** section prohibits the manufacture within any Territory or the District of Columbia, of "any article of food or drug which is **adulterated or misbranded** within the meaning of this Act," and provides the punishment for its violation.

The **second** section prohibits interstate shipments of "any article of food or drugs which is **adulterated or misbranded** within the meaning of this Act" and provides the punishment for its violation.

The **third** and **fifth** sections contain provisions for the enforcement of the law.

The **sixth, seventh** and **eighth** section define the terms "food" and "drugs" as used in the Act and also set forth with considerable detail the conditions under which articles shall be deemed to be **adulterated** and **misbranded** for the purposes of the Act.

The **ninth** section provides for immunity from prosecution under the Act to any dealer who can establish a guaranty from the wholesaler, manufacturer, etc., residing in the United States from whom he purchases to the effect that the articles purchased are "not **adulterated** or **misbranded** within the meaning of this Act."

The **tenth** section provides for "seizure, for confiscation, by a process of libel for condemnation" of "any article of food, drug or liquor that is **adulterated** or **misbranded** within the meaning of this Act and is being transported from one state," etc., to another for sale. It was under the provisions of this section that the present proceeding was brought.

The **eleventh** section provides for the examination of foods and drugs imported or offered for import, into the United States, and further provides that if it appears "that any article of food or drug offered to be imported into the United States is **adulterated** or **misbranded** within the meaning of this Act, **or is otherwise dangerous to the health of the people of the United States,**" such article shall be refused admission and shall be destroyed unless exported by the consignee within three months.

The **twelfth** section defines terms and contains some miscellaneous provisions not material to be here noticed, and the **thirteenth** and last section prescribes the date on which the Act shall become effective.

It is manifest from the foregoing analysis that the Act does not undertake to prohibit, or punish, the manufacture or interstate sale or transportation of **poisonous, deleterious** or **unwholesome** foods or drugs **unless they are adulterated or misbranded** within the meaning of the Act. It is only articles offered for **importation** into the United States from foreign countries that may be condemned under the Act on the ground that, although they may not be adulterated or misbranded, they are "otherwise dangerous to the health of the people." So far as this Act is concerned, therefore, there is no restriction on the kind of

things that may be manufactured, sold, transported or consumed as food, **provided they be not adulterated or misbranded**, and a manufacturer or dealer may make, sell and transport within the United States for food purposes, anything he chooses to sell and can persuade anyone else to buy without any interference on the ground that the article he is selling is unwholesome or deleterious or poisonous, **unless** the article is adulterated or misbranded within the definitions of the Act.

In other words, **this is not a sumptuary law**, providing what people may or may not eat, or what they may or may not sell for food, but it is a law **intended to prevent and punish fraud and deception**, so as to enable every man to get what he wants and to get it in a pure and unadulterated state.

That the law-makers did not intend by this Act to interfere with the sale and transportation of deleterious or poisonous substances as such, except in the case of imports, is clearly manifested by the provisions of clause second, under the head, "In the case of food," in section eight of the Act. This clause provides, among other things, that an article of food shall be deemed to be misbranded, for the purposes of the Act "if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, cocaine, heroin, alpha, or beta eucaine, chloroform, cannabis indica, choral hydrate, or acetanilide, or any derivative or preparation of any of such substances contained therein."

The record affirmatively shows, and the Court would probably know judicially, that each of the substances enumerated in the foregoing list is a narcotic poison,

highly deleterious, and practically certain to render any article in which it appears injurious to health. Yet the Act clearly recognizes that its passage will not interfere with the use of such substances in articles of food, if people want to use them, and the only regulation of their use which it was deemed proper to prescribe was that, in view of their habit-forming proclivities, the purchaser should be correctly informed by the label what quantity or proportion of such substances is contained in the article of food he is buying.

We repeat, therefore, that even if it were established that caffeine is a poisonous or deleterious substance, which might render the article in controversy injurious to health, its presence would not render the article subject to seizure and condemnation under the provisions of the Act unles it constituted an **adulteration** of the article within the meaning of the Act. And so it is that the libel is based, not on the contention merely that the caffeine contained in the product seized is a **poisonous or deleterious** substance, but on the ground that it is **an added** poisonous or deleterious ingredient, which may render the product injurious to health, and therefore, the product is **adulterated** within the meaning of the Act. The particular provision of the Act on which this portion of the libel is based is Clause Fifth under the heading, "In the case of food" in section 7, which provides that an article shall be deemed to be adulterated in the case of food "if it contain any **added** poisonous or other added deleterious ingredient which may render such article injurious to health." The trial court held, as we have seen, that according to the undis-

puted evidence the caffeine in the product was not an added ingredient, and therefore did not constitute an adulteration.

The object of this particular Act has been set out and discussed in the following cases:

Savage vs. Jones, 225 U. S., 501, at p. 530;

Standard Stock Food Co. vs. Wright, 225 U. S., 540;

United States vs. 65 Cases of Liquid Extract, 170th Federal, 449 (at p. 455);

McDermott vs. State of Wisconsin, 228 U. S., 115.

And so, the Court of Appeals held:

> "In applying a statute to particular facts and where it becomes necessary to construe language to which opposing sides give different meanings, it is vital to have in mind the essential scope and purpose of the act. The present case well illustrates the importance of this consideration. Much of the government's contention as to the extent of the prohibitions here found rests upon the theory that Congress intended to protect the public health by preventing (to the extent of the constitutional power resting in the commerce clause) the sale or transportation of deleterious foods. The opposing contention denies this broad purpose and concedes only the intent to prevent any fraud or deception in the sale of foods. The title to the act is broad enough to support the Government's utmost claim as to general purpose. It is an 'Act for preventing the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods,' etc. If there was nothing in the body of the act expressly prohibiting the sale of deleterious food, qua deleterious, this title would furnish some

reason for expanding in that direction any terms of prohibition there might be ambiguous enough to permit the implication (Goodlett vs. L. & N. R. R., 122 U. S., 391, 408, 7 Sup. Ct., 1254, 30 L. Ed., 1230); but we find in sections 11 which relates solely to importations from foreign countries, an express direction that such importation shall be wholly forbidden if the food is adulterated or misbranded 'or is otherwise dangerous to the health of the people of the United States'. We have therefore a provision which responds to the call of the title in this particular and makes it unnecessary to resort to any otherwise unjustifiable construction for the mere purpose of giving some effect to all parts of the title. With the exception of this clause of Section 11, every other directly or indirectly prohibitory clause of the act relates to articles which carry the taint of deception and fraud by being adulterated or misbranded. Section 2 prohibits interstate commerce in any article 'which is adulterated or misbranded, within the meaning of this act', and subsequent clauses of the same section refer to 'any such article so adulterated or misbranded within the meaning of this act,' and to 'any such adulterated or misbranded foods.' The expert examination provided for by section 4 is to determine 'whether such articles are adulterated or misbranded'. Section 7 defines when, for the purposes of the act, an article shall be deemed to be adulterated, and Section 8 defines the term 'misbranded' as used in the act, and specifies when, for the purposes of the act, an article shall be deemed to be misbranded. Section 9 prescribes a certain immunity from prosecution when there is a guaranty to the effect that the article is not adulterated or misbranded within the meaning of the act. Section 10 provides for the seizure and forfeiture of the offending articles, but its

effect is limited to the article which is adulterated or misbranded within the meaning of the act. A subsequent clause of Section 10 furnishes some superficial support for the broader theory of the purpose of the act by providing for the disposition of the offending article, if it 'is condemned as being adulterated or misbranded or of a poisonous or deleterious character, within the meaning of this act'; but this support is only superficial, because the power to condemn, given by the first part of section 10, rests on the finding that the article is 'adulterated or misbranded'. This general reference to a poisonous or deleterious character as ground of condemnation must be to instances where that character, by incorporation into the article, causes the fatal adulteration or misbranding. Considering all these parts of the act, together with its title, we cannot doubt that, so far as its general purpose and intent furnish any aid for interpretation, that general purpose and intent must be deemed to be the prevention of fraud and deception, so that the purchaser can get the thing he has a right to suppose he is getting rather than the protection of the public health to the extent of preventing the purchaser from deliberately and intentionally buying a particular food which is what it purports to be, even though a jury might think it 'deleterious'. If argument were needed to sustain this conclusion, it could be found in the provision as to drugs. Foods and drugs are put on the same basis throughout, save as to matters of definition, and some detailed requirements. There can be no room to suppose that the act was intended to prohibit broadly the sale of all deleterious foods and not to prohibit with equal breadth, the sale of all poisonous drugs. The latter supposition is impossible, and so the former cannot be accepted. Further support will

be found in the provisions which, by necessary implication, permit the sale of foods containing cocaine, morphine, and the like, provided the purchaser is properly advised of the contents. These views of the general purpose of the act have been accepted by the decisions, so far as they go. **Savage vs. Jones,** 225 U. S., 501, 533, 535, 32 Sup. Ct., 501, 56 L. Ed., 1182; **McDermott vs. Wisconsin,** 228 U. S., 115, 131, 33 Sup. Ct. 431, 57 L. Ed., 754, 47 L. R. A., (n. s.), 984; **United States vs. Lexington Co.,** 232 U. S., 399, 409, 34 Sup. Ct. 337, 340 (58 L. Ed., 658).

"The general language of the court in the last cited case that 'the statute was inteded to protect the public health from possible injury' is not at all inconsistent with the view that we have expressed, because that language is used with reference to adulterations and the addition to known foods of injurious elements. The very word 'adulterated' imports fraud and deception; it implies that the article is not what it purports to be."

United States vs. 40 Barrels and 20 Kegs of Coca-Cola, 215 Fed. Rep., 535 (at 538-539).

Nor do the cases referred to by the Government sustain any different proposition. In the case of **French Silver Dragee Co. vs. United States,** 179 Fed. Rep., 824, we understand the obiter as follows: To safeguard the public health by forbidding the **addition** to foods of poisonous or deleterious ingredients. And the same thought is expressed in each of the cases referred to. In **United States vs. 1950 Boxes of Macaroni,** 181 Fed. 427, we find the following: The object is the exclusion from interstate commerce of food products so adulterated as to endanger health. It

is the fatal adulteration each time. In **United States vs. Antikamnia Co.**, 231 U. S., 654, 665, this court said: "The purpose of the act is to secure the purity of foods and drugs, and to inform the purchasers of what they are buying."

Certain portions of the act are referred to to support the contention of the Government. The title does refer to "poisonous or deleterious". This part of the title finds support in Section 11 of the Act concerning importations, and in-so-far as that is concerned, it is a health provision. Section 8, Paragraph 2 is referred to. This, in our opinion, refers back to the fatal adulteration. Section 10, is in our opinion completely covered by the decision of the Circuit Court of Appeals in 215 Fed. 535, 539, **(United States vs. 40 Barrels and 20 Kegs of Coca-Cola).**

Concerning this very point raised by the Government we find the following in the Congressional Record of Feb. 20th, 1906, pages 2786, 2787.

> "MR. FULTON. I call attention of the Senator who has the floor to this language:
>
> 'And if such article is condemned as being adulterated or misbranded---'
>
> "Suppose that was all there was of it, or, rather, suppose it was of a poisonous or deleterious character, there certainly would be no objection to selling by the order of the court merchandise that might have been adulterated or misbranded. To be poisonous or of a deleterious character is one thing, and adulterated or misbranded is another; and it would be a wise discretion in the Court to order them to be condemned, destroyed, or sold.
>
> "Mr. Heyburn. That is in the alternative.
>
> "Mr. Fulton. It is to be assumed, I presume, that the poisonous articles would be condemned.

> "Mr. Spooner. This is predicated upon a prior condemnation, 'If such article is condemned as being adulterated;' otherwise the court has no jurisdiction over it. It is a judgment of condemnation upon an article, a proceeding in rem, to give the court any power of disposition at all."

The entire history of the debates in Congress, it seems to us, proves conclusively that this statute was not to prevent the manufacture and sale of foods, but to prevent the adulteration and misbranding thereof. This must be true, for the statute gives permission to use in foods the rankest poisons and derivatives thereof. (Sect. 8 "Foods", 2).

(PART V)

THE STATUTE CONTEMPLATES A STANDARD.

As we interpret the statute, it is necessary in order to find out and ascertain if there has been an adulteration under the statute, that some standard or unit should be ascertained. In the case of drugs, the statute itself sets out the standard or unit, that is, the Pharmacopoeia or National Formulary.

And the Government in the libel filed in this case set out the standard when it claimed to have seized a food product known and sold as Coca-Cola. In other words, the product known and sold as Coca-Cola is **the standard**; it is the product that must be adulterated.

We submit that the adulteration feature of the Act pre-supposes a finished product, and one that is to be consumed, because you could not adulterate unless you had something, some unit, to adulterate.

Gruley on Food and Drugs Act, p. 8.

Again, in order to determine whether or not an article shall be considered to be adulterated it is necessary to compare it with some standard definition or description of the article in question.

Gruley on Food and Drugs Act, p. 22.

And the Act itself, at the end of sub-section Fifth, Section 7, under "Foods," says: "The provisions of this Act shall be considered as applying only when said products are ready for consumption."

"Where there is no standard, the Court must fix for itself a standard, based upon the evidence before it."

Wilson vs. Wilson, 86 J. P., 175 (1904).

And the standard in this case was the food product Coca-Cola, as it was alleged by the Government that Coca-Cola was the product adulterated.

See Record, p. 62.

The libel charges:

> "Said food product as above stated and described was adulterated under the Act of Congress aforesaid in this: caramel and other flavoring substances, and by the use of certain flavoring substances, consisting of oil of lemon, sugar, syrup and lime juice, whereby damage or inferiority of the mixture (the **food product,** Coca-Cola) was * * *," etc.
>
> See Record, p. 62.

Circuit Judge Ward said, in defining a standard:

> "The trial judge taking judicial notice that standard lexicographers define the words 'salad oil' as 'olive oil', denied the defendant's motion to quash the information, on the ground that it alleged no offense, and afterwards, it being stipulated that the can had contained sesame oil, and not olive oil, he denied the defendant's motion to direct a verdict in their favor.
>
> "The Government, thereupon, rested, and the defendant showed by a large number of witnesses that for some forty years, a perfectly healthy oil for edible purposes had been made from cottonseed and sold in enormous quantities in this country as salad oil, and that other edible oils were made from the seed of sesame, a kind of grass, and from peanuts, and from corn, and sold as 'salad oil.'"
>
> **Von Bremen vs. U. S.,** 192 Federal, 905.

Again,

> "It was also error to refuse to let large dealers in this salad oil say what the understanding of the trade was as to the meaning of the word 'salad oil.'"
>
> **Ibid.**

"In referring to articles of food, and to protect the users thereof, the Legislature must have had in view some standard. Has the article acquired some well defined meaning?"

> **People vs. Jennings,** 94 N. W., (Mich.) 216. (132 Mich. 662).

And it is evident that a standard is obtained from the trade knowledge of that article.

> **McCord Merc. vs. U. S.,** 182 Fed., 47;
>
> **U. S. vs. St. Louis Coffee and Spice Mills,** 189 Fed., 193;
> **U. S. vs. Frank,** 189 Fed., 195;
> **Two Hundred Chests of Tea,** 9 Wheat, 431;
> **Hudson Mfg. Co. vs. U. S.,** 192 Fed., 920;
> **Libby, McNeil & Libby vs. U. S.,** 210 Fed., 148;
> **U. S. vs. Sweet Valley Wine Co.,** 208 Fed., 85;
> **U. S. vs. 75 Boxes of Pepper,** 198 Fed. 934;
> **Weeks vs. U. S.,** 224 Fed., 64.
> **Cadwalader vs. Zeh,** 151 U. S., 171.

And the Government has heretofore admitted, in many of its cases tried, that a standard must be established, and that the standard is established in finding out what is a given substance as recognized by reliable manufacturers and dealers.

> See Notices of Judgment, 3, 5, 9, 11, 14, 28, 31, 37, 48, 56, 71, 73, 74, 75, 81, 123, 130, 135, 136, 139, 141, 142, 143, 147, 148, 149, 150, 151, 152, 189, 823, 1450.

See especially, Notices of Judgment 123, 130 and 135; where the following words are used:

> "Vanilla extract or flavor, **as recognized by reliable manufacturers and dealers,** is the flavoring extract prepared from the vanilla bean and contains the soluble matters from not less than 10 grams of the vanilla bean to each 100 c. c."

The question then arises, what is the standard in this case? The libel itself says that it was the food product Coca-Cola, and the evidence shows that for many years past this food product contained caffeine as one of its ingredients. **The only standard for the product proven in this case was a food product, Coca-Cola, which has always contained caffeine.**

A careful reading of the Act itself proves conclusively that a finished product is presupposed, and not the ingredients that enter therein. It must be the finished product that is adulterated. For instance, under "Confections," in Section 7, it is stated: "If **it** contain terra alba," etc.

Under "Foods" it states: "If any substance has been mixed so as to reduce or injuriously affect **its quality,**" etc.

"If any substance has been substituted * * for the **article.**"

Again, "if any valuable constituent of the **article,**" etc.

Again, "if **it** be mixed, colored," etc.

Again, "if **it** contain any added" * * etc.

"If **it** consists in whole or in part," etc.

It is also evident from a comparison of Sections 6, 7 and 8 that the word "it" as set out in Sec. 7 refers not to the ingredients of the article itself, but to the

completed article, for in Section 8 not only are the words "drugs or articles of food" set out, but also "articles which enter into the composition of foods," and also, "ingredients or substances contained therein."

It is evident from the reading of the statute that the word it in Section 7, sub-Section 5, under "Foods" refers back to the words "an article," as set out in the first line of Section 7, and it necessarily follows that "an article" as set out in Section 7, refers to Section 6, wherein the term "Food" is defined and the term "Food" includes a beverage, whether simple, mixed or compound.

And again, Section 3 refers to foods and drugs that are manufactured or offered for sale in the District of Columbia, etc., and does not refer to the ingredients of the drugs of the foods that are offered for sale.

And again, the libel itself refers to the completed food product Coca-Cola, and under the Government's interpretation of what is the standard, it necessarily follows that the standard is the product as manufactured by the manufacturer, and the sole manufacturer in this case is The Coca-Cola Company, who, as the evidence proves, has been the only company to put out a product known as Coca-Cola, and has used this term exclusively for over a period of twenty years.

Therefore, the standard is Coca-Cola, as manufactured and made by The Coca-Cola Company, and this Coca-Cola as manufactured and made by The Coca-Cola Company contains, under the evidence, as one of its essential ingredients, caffeine.

It is charged by the libel and amendments thereto that the food product Coca-Cola was adulterated and

misbranded. The motion to advance admits that this compound has a distinctive name. This product has been made continuously since 1886, by the claimant, and its predecessors, and it has always contained caffeine. The question then arises, when a product has a set standard, according to which standard, caffeine is one of the ingredients, can that same ingredient be an "added" ingredient?

There really can be no dispute about the conclusion that the Act contemplates a standard---presupposes one. The Government admits that contention in the Motion to Advance, when they ask,

> "Is a compound food with a distinctive name adulterated under the act, if one of its ingredients is a poisonous or deleterious substance which may render such article injurious to health and which, though required by the formula of that particular compound, is foreign to and not normally found in foods of like character?"

The only question left is, what is the standard in this case? Can it be foods of like character? If so, what foods? Certainly this record only takes up three foods of like character, to-wit, coffee, tea and chocolate. If that be the test by which we obtain a standard, then these foods do normally contain caffeine, and caffeine is not foreign to foods of like character. Not another food is taken up in this record, and if we must resort to others to obtain a standard, then the only other foods mentioned in the record, contained caffeine.

But should we not apply the evidence to the act charged in the libel? The Government cannot go outside of the evidence and the libel, and cannot convict unless the charge as made in the libel is sustained by

the evidence. The evidence conclusively shows what Coca-Cola is---that it contains, and has always contained caffeine. Can it then, be contended that the caffeine is added?

Washburn vs. U. S., 224 Fed., 395, 398.

The decision of the lower court is sustained by one line of reasoning that does not involve any careful study or construction of the Act of Congress, but merely an application of the evidence to the Act charged in the libel.

The Government cannot go outside of the libel, and cannot convict unless the charge **as made in the libel** is sustained by the evidence.

The libel charges us with adulterating "Coca-Cola."

The first question, therefore, that must necessarily present itself to the court for determination, is, "What is Coca-Cola?"

An examination of dictionaries by the court shows that it is not a recognized **definable** word. If we had been charged with adulterating flour, or meal, sausage or mince-meat, the accepted definition found in the dictionaries would have afforded the court a basis on which to determine the normal ingredients of the "article," and the presence of **any other** than these **normal** ingredients might have afforded a question for the jury as to whether the **additional** ingredient was prohibited by the law.

As the court could not get a basis as to the **normal** ingredients, (that is, those ingredients that are and **always** have been included therein, and without which the "article" has **never** been made or existed) of Coca-Cola from the dictionaries, it must acquire this information solely from the evidence.

The undisputed evidence showed that the inclusion of caffeine was coincident with the discovery or **original** creation of Coca-Cola,---that there had never been any Coca-Cola anywhere at any time that did not contain caffeine; that without the caffeine, the article would not be the **same article** to which the name "Coca-Cola" had been originally, and continuously and exclusively up to this time, applied.

The definition of Coca-Cola thus supplied by the evidence must necessarily be accepted and used by the court in lieu of and in the same manner as it would have used and applied the **dictionary definition** of flour, meal, sausage or mince-meat.

When, therefore, the definition of Coca-Cola as defined by the evidence, to-wit, "a beverage syrup containing caffeine and other substances," is applied to the charge contained in the libel, the result is, to reduce the alleged charge of adulteration to the charge that the defendant had "adulterated a beverage syrup normally containing caffeine, by including therein the usual amount of caffeine which must necessarily be included therein in order to produce it."

So, the Court of Appeals held:

> "It is impossible intelligently to conceive the meaning of 'added,' unless we suppose a base upon which the addition is placed, and we at once meet the question: If caffeine is the addition, what is the base? For 15 years before the passage of the Act, Coca-Cola had been an existing article of food (within the statutory definition of 'food'), and in the latter 10 years of that period it had been one of the most widely known and used articles of its general class. It was a compound; it had no distinctive base (unless water, by reason of its lar-

ger proportion); it was made up of water, sugar, caffeine, phosphoric acid, glycerine, lime juice, coloring matter, flavoring matter and 'Merchandise No. 5.' Each of these elements is more or less important; there seems to be no method of determining their relative importance; but if any one may be rejected as comparatively negligible or secondary, or non-characteristic, that one is not caffeine. In the manufacturing process water and sugar are boiled to make a syrup; this boiling is repeated; then caffeine is 'added,' and then the syrup is boiled once or twice more; the syrup is then put in a cooling tank and then into a mixing tank in which the remainder of the process is carried on, and in which the other elements become a part of the ultimate combination. It is plain as may be that without caffeine the mixture would not be Coca-Cola, and the purchaser who had been using it in its standard form 15 years when the act was passed, and who might then buy an article of the same name which did not contain any caffeine, would rightfully think that he was deceived; and yet it is said that the act intended to prevent misleading the public is violated unless the public is thus misled.

"It is another form of the same thought to say that the mere use of the word 'adulterate' or 'added' implies the existence of a standard, and it is a contradiction in terms to say that the use of an element necessary to constitute the standard is an adulteration of, or addition to, the standard; but to this contradiction, the argument for the Government necessarily leads. So, further, we find that clause 3 of that division of section 7 relating to foods declares adulteration if any valuable constituent has been abstracted. Caf-

feine is a valuable constituent. If it is omitted, the article is adulterated, and if it is included, the article is adulterated. We must break clause 3 to keep clause 5."

United States vs. 40 Barrels and 20 Kegs of Coca-Cola, 215 Fed. Rep., 535 (at p. 540).

PART VI.

IS THE CAFFEINE IN THE PRODUCT INVOLVED IN THE CASE AN "ADDED" INGREDIENT WITHIN THE MEANING OF THE FOOD AND DRUGS ACT?

1. It must be conceded that some significance is to be attached to the term "added" as used in the Act, and that when Congress provided that an article should be deemed to be adulterated "if it contain **any added**" poisonous or other added deleterious ingredient, the language used does not justify the condemnation of an article as adulterated merely because it **contains** a poisonous or deleterious ingredient, unless that ingredient be also an **added** one.

(a) That the word "added" was not used idly or without being intended to have any meaning, is demonstrated by comparing the provisions as to what shall constitute adulteration in the case of confectionery, with those applicable in the case of ordinary food. In the case of confectionery, the Act provides that it shall be deemed to be adulterated "if it contain terra alba," etc., "or other mineral substance or poisonous color or flavor, or **other ingredient** deleterious or detrimental to health." The very next clause of the Act is that which prescribes what shall constitute adulteration in case of food; and instead of repeating the same language which had been used in the case of confectionery, as would no doubt have been done if there had been no intention of making a distinction between the two classes of articles, the qualifying word "added" is brought into use.

So it is that by the first of these two consecutive clauses the Act provides that confectionery shall be deemed to be adulterated if it contain any "poisonous color or flavor or **other ingredient** deleterious or detrimental to health," while by the second, it provides that food shall be deemed adulterated if it contain "**any added poisonous or other added deleterious ingredient.**" And in subsequent provisions of the Act this qualifying word is carefully preserved; as in the proviso in Clause Fourth, under the heading, "In the case of foods," in Section 8, to the effect that "an article of food which does not contain **any added poisonous or deleterious ingredient** shall not be deemed to be adulterated or misbranded, in case of mixtures or compounds, etc., and the proviso under sub-division second of this same clause that "nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome **added** ingredient to disclose their trade formulas," etc. It is to be noted that proprietary foods do not appear in a state of nature. Why repeat "added" in these two sections?

It being evident, therefore, that the word "added" as used in the Act has some significance, the questions to be determined are, first, what is its meaning, and second, is the caffeine in Coca-Cola an added ingredient within that meaning?

(b) Taking the ordinary definition of the word "added" there would seem to be no great difficulty in arriving at the meaning which the law-makers intended to convey by the use of it in the present instance. The idea which the word "add" suggests is the putting on to, or into, an existing entity something

which was not previously a part of it; and whether a particular thing or substance is **an addition** to that with which or into which it is put, or is a **constituent element** of it, depends largely on the circumstances and the point of view. To illustrate:

If a man starts out to build an eight-room house, and does so, no one of the eight rooms would constitute **an addition** to the house; but if he starts out to build a seven-room house, and does so, and then afterwards concludes to make an eight-room house of it, by building another room, the last room is **an addition** to the house, being something added to, and not constituting a part of, the house as originally contemplated and built. And so if a man professes to sell straight whiskey, and puts water into it, in addition to that amount of water which is normal in it, this water is **an added** ingredient, not being a constituent element or ingredient of the whiskey as usually and properly made. But on the other hand, if one professes to make and sell a compound, made of half whiskey and half water, then the required proportion of water would not be an added ingredient in the compound, because it is one of its constituent elements, without which the compound would not be what it professes to be. To vary the illustration: if tomato catsup is compounded of the substances which are recognized as the normal constituents of the article when properly made, no one of those constituents would be **an added** ingredient; but if a foreign substance, as for instance benzoate of soda, is put into the catsup, it is **an added** ingredient because not one of its normal constituents, and if it is a poisonous or deleterious ingredient such as might render the catsup injurious to

health, it would constitute an adulteration within the meaning of the Act. Alcohol, while recognized as at least a deleterious, if not a poisonous substance, is not an adulteration in whiskey, or in flavoring extracts, etc., because it is a normal and essential constituent of such articles. To state the rule in the abstract form, no substance can be properly said to be an added ingredient in an article of which it is one of the essential constituents, and conversely, every substance which is not an essential or constituent element of a given article is an added ingredient if present in that article.

We take it that the Government has misconceived our idea of the meaning of "added," when they say, by the mere device of adding any ingredient whatsoever to an adulterated simple food, and proclaiming a formula and a distinctive name, the Act would not be applicable. (Page 11). Such is not the position of the claimant. You must first consider the standard; find whether there has been anything additional placed with it; and find whether it is poisonous or deleterious, if so, may it render the article injurious to health? The distinctive name would not protect this product with an added ingredient.

On this question, we call attention to the case of **Friday vs. Hall,** 216 U. S., 449 (at p. 455), (26 L. R. A. (n. s.), 475), where this court says:

> "The production of concrete arches, or piers, or abutments, is the result of successive steps. The combination of raw material, the sand, the limestone, the cement and the water, **produced a product** which undoubtedly was manufactured."

If we desire to make concrete, there are certain materials necessary to make it up. Could we say that

they are "added?" Or, take the example given by the Government, could we say that water, charcoal and sulphur or either of them are **added** to gunpowder?

Bearing in mind that the clearly evinced purpose of the Food and Drugs Act was not to prescribe what the people may or may not eat, but to protect them from fraud and imposition, the reason for the use of the word "added" in the provisions under consideration is perfectly clear. When a man buys whiskey he expects to get some alcohol in it, and he is not deceived or imposed on because of the presence of the alcohol, although it may be said to be a poisonous and deleterious ingredient. But when one buys an article which contains an **added** ingredient---that is, something which is not one of its normal constituents---he is deceived, and if that added ingredient is of a poisonous or deleterious nature, his health, and perhaps his life, is being imperiled. Therefore it is that the Act, while not undertaking to interfere with the manufacture, sale or transportation of articles containing poisonous or deleterious ingredients among their normal constituents, has most emphatically condemend the **addition** to food products of substances of that kind.

(c.) If we are correct in the foregoing discussion as to the proper construction of the Act, then there can be no question as to whether the caffeine in Coca-Cola is an added ingredient within the meaning of the Act. The evidence establishes that the name "Coca-Cola" was never applied to any other food product than the one in controversy here, and that it has been used as the distinctive name of that particular product for over twenty years, and that the product known and sold by

this name has always contained as one of its constituent elements practically the same proportion of caffeine which is found in the samples attached in this case.

(See Record, pp. 82, 132, 365, 724, 730, 731, 742, 743, 744, 745, 746, 1624, 1862.)

In view of these facts, it is perfectly clear that an article containing the other ingredients of this product, but omitting the caffeine would not be Coca-Cola, within the meaning of that name as known to and used by the public, and the trade; and if one should undertake to put up and sell as Coca-Cola an article which did not contain caffeine, as one of its ingredients (1) He would in the first place, be guilty of deceiving and defrauding the public, or at least that portion of it which had been accustomed to, and wanted to buy, the article generally sold under that name; (2) In the second place, the article would be misbranded under the Act, because "an imitation of or offered for sale under the distinctive name of another article" and (3) The article would probably be adulterated under the Act because of the abstraction of one of its valuable constituents.

Unless, therefore, an article can be "adulterated" by the presence of one of its essential constituent elements, without which it would not be what its name implies, and therefore would not be entitled to use the name, and unless such an element constitutes an addition to an article which could not exist at all without it, then the product Coca-Cola is not adulterated by the presence of its caffeine content.

And it will be observed in this connection that the libel is based on the contention that the product Coca-

Cola is adulterated by the addition of caffeine, and not on the theory that the sugar and other ingredients which enter into the compound are adulterated because caffeine is added to them. It is true that two and two added together make four, but we are not charged with adulterating two, but with adulterating four. **The question of the right under the law to use caffeine as an ingredient in a food product is not presented by the record**; the only issue made being whether or not it constitutes **an adulteration** as an **added** ingredient, in this particular compound.

> "The term 'adulterate' means to make impure by the admixture of other, or baser, or foreign ingredients; to render counterfeit."
>
> **City of St. Louis vs. Judd**, 139 S. W., 441. (236 Mo., 1).

It implies, first, a standard, by comparison with which the question of adulteration can be determined; and second, a departure from that standard. In other words, it necessarily involves the **adding** to a known article, of something which does not properly belong to, or constitute a part of it.

In the present case we have involved, not a new product, but one which has been made according to the same standard, and sold and consumed under the same name for more than twenty years. To eliminate the caffeine from this product, and still call it "Coca-Cola" would be to practice a fraud, certainly on every person who was accustomed to purchase and consume the product made in accordance with its formula; and to say that "Coca-Cola" is adulterated, that is, that it is made counterfeit, or not genuine, by the presence in it of this essential constituent, would be a perversion of

the well-recognized meaning of the term "adulterated" of which Congress should not be convicted except on exceedingly strong evidence. We submit therefore (a), that caffeine is not an added ingredient in Coca-Cola within any reasonable definition of the word "added"; and (b), that its presence does not constitute an adulteration in Coca-Cola, within the proper meaning of the term "adulteration." In order to sustain the libel, it was incumbent on the government to show **both** that caffeine was an added ingredient, **and also** that it was an adulteration.

2. We have been able to find very little authority shedding any light on the question under consideration. In the case of United States vs. 1950 Boxes of Macaroni, 181 Fed. Rep., 427, the proof showed that the **normal** constituents of macaroni are flour and water, and that "to change **its natural** color and make it more inviting" Martius yellow **was added**; that this coloring matter is not an **ingredient** of macaroni, serves no other purpose than to change its color, and is a poison which will kill." The Court held that as the coloring matter was a poisonous substance **wholly foreign** to the food product" and was **added** to it "solely to mislead and deceive" its presence was an adulteration within the meaning of the law.

In the case of **Commonwealth vs. Kevin,** 202 Pa. St., 23, 29, the Court had under consideration a statute of Pennsylvania passed "to prevent the adulteration of food," which provided among other things that food was adulterated "if it contain an added substance or ingredient which is poisonous or injurious to health." The Court said of this Act:

> "It does not prohibit the admixture of pure articles as a food nor prohibit **the addition** of a healthful ingredient as a food preservative. It is directed against the introduction into a food product of **a substance foreign to it**, and of a poisonous or injurious nature."

In **Hall-Baker Grain Co. vs. United States**, 198 Fed. Rep., 614, 616, it was said that the "sole purpose" of the Food and Drugs Act was, (1) to protect purchasers from injurious deceits by the sale of inferior for superior articles; and (2) to protect the health of the people by preventing the sale of **normally** wholesome articles to which has been **added** substances poisonous or detrimental to health.

And this Court said:

> "As against adulteration, the statute was intended to protect the public health from possible injury **by adding to articles of food consumption** poisonous and deleterious substances * * *."
>
> **U. S. vs. Lexington Mill & Elevator Co.**, 232 U. S., 399.

And again, this Court quoting the construction of the State Supreme Court in construing the Food law of the State of Illinois, said:

> "We think the reasonable construction of the Act to be that the prohibition against boric acid is not limited to foods to which it is an added ingredient, but extends to compounds sold as a food preservative which contain boric acid. The danger to health is as great from one as the other, and the prohibition of both was necessary to effect the evident purpose of the legislation."
>
> **Price vs. People of the State of Illinois**, Oct. Term, 1914.

This case is important here only when we consider the Federal Food Law in contrast with the Illinois Food Law. The Illinois Food Law contains a section indentical with the one here under consideration, and also a provision which declared a compound adulterated which contained any of various ingredients, among others boric acid. As the Supreme Court of Illinois said in construing the Act:

> "The object of the Act is to protect the public health by preventing dealers from selling food to which has been added, for the purpose of preserving it, ingredients injurious to health, or from selling any compound as a preservative which contained any such ingredients."

Clearly, the Illinois Act under its very terms covered both, whether added or not, while the Federal Act only declared adulteration in case of added poisonous or added deleterious ingredients.

See also,

U. S. vs. 11,150 Pounds of Butter, 195 Fed., 657, at p. 661:

These cases seem to sustain us in the contention that the term **added** ingredient means something **foreign** to the article to which it is **added,** and that therefore, an ingredient which is a constituent element and is not foreign is not an **added** one.

See also,

Weeks vs. U. S., 224 Fed., 64, 67,
Curtice Bros. Co. vs. Barnard, 209 Fed., 591, 594.

We have carefully examined all of the American cases on this subject, and a good many of the English ones, but with the exception of one case, we have

found none brought under this Section where the facts did not show a completed article and some ingredient added to that---a standard and an addition thereto. The single exception is the case of **U. S. vs. Mayfield,** 177 Fed., 765; and in that case the significance of the word "added" was evidently not called to the attention of the Court, and was obviously overlooked.

(3) The debates in Congress on the consideration of the Food and Drugs Act, and the explanation of the different provisions by members of the committee, were referred to in the argument of the case in the Court below, and the trial judge ruled, without objection from either side, that he would permit counsel to refer to the reports of the Committees on the bill, and the statements made by the Chairman of the two Committees with reference to the purposes of the bill.

(Record, p. 1834.)

The Food and Drugs Act originated in the House of Representatives, and the Chairman of the Committee by which the bill was drafted and presented to the house was Mr. Mann, of Illinois. He had occasion, repeatedly, to explain the general scope and purpose of the bill, as well as the meaning of particular provisions contained in it, and he was always very clear and emphatic in his declarations that the law was not intended to prescribe or limit the diet of the public, but only to protect it against fraud and imposition. In the Congressional Record for June 21st, 1906, p. 8891, discussing certain antagonistic views which had been urged on the committee as to the proper standard for whiskey, Mr. Mann said:

> "We did not recommend and have not recommended a proposition upon that point as either

side requested, thinking it was not the duty of the committee to recommend to Congress legislation **which would determine what people should eat or drink,** but rather to recommend legislation, **which would permit people to know** what they are eating or drinking."

Again, on the same day Mr. Mann said:

"We cannot undertake to prevent the man who is an opium fiend from obtaining opium, but we can undertake to prevent the man **who never wishes to take opium from taking it without knowing** that he is taking it."

Cong. Rec., p. 8892.

And again, he said on the same day:

"There are a great number of so-called cereal foods. It is impossible to ascertain much about the contents, unless there is some method provided. It is true people can buy them or not buy them, as they please. It is also true that people must eat, and hence, must buy some articles of food. Now, I do not wish to say **that people shall not put up such food as they please, or buy such food as they please.**"

Cong. Rec., p. 8900.

The Chairman of the Senate Committee in charge of the bill was Mr. Heyburn of Idaho, and his statements, in the main, seem to conform to and sustain Mr. Mann's views. Thus in the Congressional Record, of February 21st, 1906, p. 2750, discussing the force and effect of the word "added," as used in the Act, he says it is "merely a definition"; that the word "adulterate" means "to degrade; to lessen the character of the thing by mixing with it something of a lesser value of a degraded character"; that when the Act

says that the mingling of an added poison with the thing itself would constitute an adulteration, it states what would probably be true in any event, namely, that "if you add to the venom of the article itself for destructive purposes, or the capacity of it to injure those who use it," you have adulterated it. He then continues:

> "That is the object of introducing the word "added because there are many legitimate substances in commerce that contain in their natural condition certain percentages of deleterious substances, poisonous in whole or in part, and this is intended simply to provide that if you add to those substances, no matter what the degree of deleteriousness may be, **you have degraded the article** to the extent that you have added other poisonous substances to it. That is what it means. It is merely a definition."
>
> Cong. Rec., (p. 2750), Feb. 21, 1906.

And later on, in response to an inquiry from Mr. Spooner as to what the word "added" would mean as applied to whiskey, Mr. Heyburn replied:

> "**Added to the liquor.** I have just stated that **it had been determined through long years of experience what constitutes liquor.**"
>
> Cong. Rec., (p. 2752) Feb. 21, 1906.

And again, Mr. Spooner, not being satisfied as to the proper signification of the word, "added," said:

> "That does not touch the point. Added to what?"
>
> "Mr. Heyburn: **Added to the substance, whatever it be.**"
>
> Cong. Rec., (p. 2755) Feb. 21, 1906.

And while discussing the debates in Congress, it is well to refer to the quotation from the legislative history as is shown in the brief of the Government, and to do this, it is well to point out that there is a difference between the bill as it appeared in the Senate and the bill as it appeared in the House. The bill in the Senate, so far as it relates to the question under discussion, to-wit; the adulteration, contained two clauses, the first one being,

> (1) "In the case of liquors, an article shall be deemed adulterated if it contain any added ingredient of a poisonous or deleterious character."

There was also, in the Senate bill a clause that related to foods, which read as follows:

> (2) "If it contain any added poisonous or **other ingredient** which may render such article injurious to human health."

We find that neither of the above clauses appear in the bill as passed.

The latter quotation is found in the **Congressional Record, of January 10, 1906, page 897 and Feb. 20, 1906, p. 2729**; and the first quotation in the **Congressional Record of February 19, 1906, page 2647.**

It is also, well to call the Court's Attention to an amendment that was offered just before the Senate passed the bill that was before it. The amendment read as follows, and is found in **Vol. 40 of the Congressional Record, page 2772,** and this amendment was rejected. It was as follows:

> "If it contain any substance or ingredient, whether added, or otherwise, * * * which will injure health."

Now, taking up the quotations from Senator Heyburn, as quoted in the Government's brief **(40 Cong. Rec., Part I, p. 894)**, Senator Heyburn was discussing the proposed bill as it appeared before the Senate, to-wit:

> "If it contain any added poisonous or other ingredient * * * ."

This is entirely different from the clause in the bill, as passed.

Also, **(40 Cong. Rec. p. 2647)**, the discussion then under consideration was in regard to that part of the bill which was before the Senate, above quoted, and which referred to liquors.

The same is true in regard to that quotation in the Government's brief from **40 Cong. Rec.**, p. 2750.

The quotation from **40 Cong. Rec.**, part 3, p. 2758 is in regard to the above portion of the bill that was before the Senate in regard to foods, and which was not passed.

If we compare the bill as finally passed with the bill that was before the Senate, a radical change is noted, and one that bears out the contention that we make in this case.

While we do not believe that it is necessary, in order to ascertain the scope and purpose of this Act, to go to the legislative history, if we must go to it we believe that it will show conclusively that Congress did not intend this Act to cover the purpose and scope that the Government would give the particular section involved.

Since about 1890 Food and Drugs Acts have been introduced in Congress. We have tabulated herein

some of those introduced since 1900. Congress had these Bills before them. As we have seen, these Bills did not confine themeslves to "added" but provided for "any ingredient". Bill S. 88 was before the Senate in Jan. 1906. Let us see what that Bill provided. It had two sections in it that should be compared to the Section of the present Act, to-wit:

> (1) "In the case of liquors, an article shall be deemed adulterated if it contain any added ingredient of a poisonous or deleterious character."
>
> Cong. Rec., Feb. 19, 1906, p. 2647.

Now this particular section was debated and the word "added" came up for most serious consideration. Senator Heyburn taking the position that it was placed in the proposed Bill to protect nature's poisons---Senator Lodge took the position that it allowed a man to put it (poison) in the original manufacture, and punishes the man who adds it. Senator Spooner took the position that it must be added to something, therefore what is the standard? This discussion, however, was finally narrowed down to a controversy between straight and blended whiskey. It was conclusively shown that this section would not prevent the sale of articles that contained poisons, but would simply prevent "adding". Now in order to prevent the sale of liquors that did contain poisons and at the same time protect nature's poisons, an amendment was introduced as follows:

> "In the case of liquors, an article shall be deemed to be adulterated if it contains any added ingredient of a poisonous or deleterious character not inherent in such liquor."
>
> Cong. Rec., Feb. 21, 1906, p. 2754.

But this was rejected on the ground that it still allowed poisonous and deleterious ingredients, so long as they were not added. Senator Heyburn was evidently impressed with the idea that under the above section that was so, for we find the following between Senator Lodge and Senator Heyburn. Senator Lodge said:

> "It seems to me with the word added in there the difficulty is: the liquor could be filled with any amount of poisonous substances if it is in the original manufacture, and you cannot get at it, because the substance has to be 'added' in order to come within the condemnation of this proposed law."
>
> "Senator Heyburn: That comes under another provision.
>
> Cong. Rec., Feb. 21, 1906, 6. 2749.
>
> "Again, Senator Penrose said: But how would it reach the case of straight whiskey in which the fusel-oil was inherent and had not been eliminated by age * * *? How would this amendment (the one which stated "not inherent in liquor") reach the case where fusel-oil has not been added, but is inherent in the whiskey?
>
> "Senator Heyburn: It does not reach it at all, but there are other provisions in this bill that do.
>
> "Senator Penrose: Will the Senator point out to me * * * what part of this Bill will reach that case?
>
> "Senator Heyburn: **The provision that prohibits the sale or commerce in any article that is deleterious to human health.**"
>
> Cong. Rec., Feb. 21, 1906, p. 2750.

Now it must be apparent that the foregoing section in the Senate Bill as originally proposed is practically the same as the section under discussion in

the Act as passed, except that the proposed section refers only to liquor.

It also must be apparent that Senator Heyburn assented to the criticism of Senator Lodge, and had to refer to another portion of the Act in order to cover the situation as outlined by Senator Lodge.

The other part is: (2)

> "If it contained any added poisonous or other ingredient which may render the article injurious to human health."
>
> Cong. Rec., Jan. 10, 1906, p. 897.

Of course Senator Heyburn was correct in his discussion of this section, and this is the section he was discussing. With these two sections the Bill (S88) passed the Senate. But at about the same time the House was discussing a Food and Drugs Act. They had before them a Bill which contained only one section that referred to the one under discussion, to-wit:

> "If it contain any added poisonous or deleterious ingredient which may render the article injurious to health."
>
> Report No. 2118, March 7, 1906, 59th Congress, 1st session, p. 2.

Now the House had before it the former Bills (since 1890). The House would not pass the Senate Bill and substituted the Hepburn Bill as perfected. Mr. Mann from the Committee reported:

> "As the principal purpose of the Bill is to prevent interstate and foreign commerce in adulterated or falsely branded articles of food, drink and medicine; again, 'the purpose of the pending measure is not to compel people to consume par-

ticular kinds of food'; again, 'it is not to compel manufacturers to produce particular kinds of grades of food'; again, 'One of the principal objects of the Bill is to prohibit in the manufacture of goods * * * * the addition of foreign substances, poisonous or deleterious to health."

Report No. 2118, March 7, 1906, 59th Congress, 1st session, pp. 3, 6.

The Hepburn Bill as perfected had only one section that related to the Section under discussion as follows:

"If it contain any added poisonous or other added deleterious ingredient, which may render such article injurious to health."

Same Report, p. 11.

And this Section was made the law, and it is radically different from the section that Senator Heyburn was citing in his discussion with Senator Lodge, showing as we think most conclusively that Congress only intended to prevent additions to the standard, and showing further that Congress did not intend to make the scope and purpose of this Act as broad as the Government contends for. This must be plain, for the liquor section is practically the same as the Act as passed (except as passed it referred to foods) and under the liquor section poisons could be used in the manufacture, and to this Senator Heyburn agreed, while under the food section as proposed this could not be done, and this proposed section prevented more than did the liquor section. It's limitations were broader, and Senator Heyburn agreed. And this proposed section was the same as the proposed section in former Bills, but different from the bill as passed.

Senator McCumber on Feb. 20, 1906, p. 2731, stated:

> "We differentiate between adulteration and misbranding. Adulterations are intended to cover those cases where you change the quality of the particular thing by additions, etc., and misbranding is where you give to a food article a name entirely different from its own."

Senator Heyburn in discussing the liquor section did frequently say that the word "add" was placed in the section to protect nature's poisons and in giving illustrations cited simple foods. But when Senator Penrose called his attention to the fact that this section was protecting straight whiskey, Senator Heyburn replied another section would take care of that. Senator Heyburn was just a bit inconsistent. However, his desire was to protect nature's poisons---that was his prime object in discussing the bill. He says that the word "added" did it in the liquor section. But in illustrating the object of "added" in this section he cited simple foods that had poisons in them. Foods evidently were not considered as coming under this Section, for there was another section referring to foods. Now the object of the Act under the proposed bill was to protect "nature's poisons"---Senator Heyburn said so---and we agree that it did. But the food section under this bill did not have "added" in it before ingredient. (If it contain any added poisonous or **other ingredient** which may render the article injurious to the health of the person consuming it.) If Senator Heyburn was correct in the object, then "added" evidently was not needed to carry it out. The phrase "which may render the article injurious to health" did that. It is certain that it would pro-

tect such articles as were cited as illustrations. And if it didn't and further if this is a health statute, why protect? But the desire was to protect "nature's poisons"; this proposed act Senator Heyburn contended did. Therefore, when the word "added" appears in the present statute it is not accounted for by the claim that it was put in to protect "nature's poisons". And so we say that "added" under the present Act was put in for a purpose other than to protect "nature's" poisons." They would have been protected if the Act had read, if it contain any poisonous or other deleterious ingredient which may render the article injurious to health. For as this court decided in **U. S. vs. Lexington Mill & Elevator Co.**, the question is, does the ingredient render the article injurious to health? Certainly the oil in the grain does not so render the grain, nor does the acid in the peach, nor does the caffeine in the coffee and tea.

It will be interesting to notice some of the different bills that have been introduced in Congress pertaining to foods and drugs. These bills which we will discuss were introduced prior to the passage of the present act, and we have undertaken to parellel a section from each of these bills, including in the parallel columns, the present act. Of course, the entire bills are not quoted, but only that portion of each which resembles, or relates to the part of the present act which is under discussion. It is true, that these can only be persuasive, but nevertheless, it shows the true intent of Congress.

Herewith we present the parallel columns showing the number of the bills, when and where introduced, and by whom introduced:

(1).

(S 1—Report No. 914,
Introduced by Mr. Paddock,
52nd Congress, 1st Session.)

"If it contain any added poisonous ingredient or any ingredients which may render such article injurious to the health of the person consuming it."

(4).

(H. R. 12,348—3-4-1902.
Introduced by Mr. Corliss
57th Congress, 1st Session.

"That any article of food or drink or any article or compound intended to become an ingredient in a composition or preparation for food or drink, containing substance or substances which are, in the quantity used, or intended to be used, deleterious to health * *."

(3).

(H. R. 9353—1-18-1902,
Introduced by Mr. Mann,
57th Congress, 1st Session.

(Same as H. R. 12,348.)

(7).

(H. R. 6295—12-8-1903,
Introduced by Mr. Hepburn
58th Congress, 2nd Session.)

"If it contain any added poisonous ingredient which may render such article injurious to health."

(5).

(H. R. 3109—12-20-1902.

Introduced in the Senate
by Mr. McCumber.)

"If it contain any added poisonous ingredient or any ingredient which may render such article injurious to the health of the person consuming it."

(6).

(S 198—11-11-1903,

Introduced by Mr. McCumber.)

"If it contain any added poisonous ingredient or any ingredient which may render such article injurious to the health of the person consuming it."

(2).

(H. R. 9677—3-16-1900.

Introduced by Mr. Hepburn.)

"If it contain any added poisonous ingredient, or any ingredient or ingredients, which may render the article injurious to the health of the person consuming it."

(8).

(S—88—The Act as
Passed):

"If it contain any added poisonous, or other added deleterious ingredient which may render the article injurious to health."

The contention of the Government is, that this is a statute, among other things, for the protection of the public health.

Column 1 shows the bill introduced by Mr. Paddock. It must be noted that this bill provides against adulteration, "if it contains any added poisonous ingredient". If the bill had stopped there, insofar as "poisonous" is concerned, we would have had the same bill, in part, as was passed; but the Paddock bill goes on further to say, "or any ingredients which may render such article injurious to the health of the person consuming it". The word "added" is not repeated, as it is repeated in the present Act, before "ingredients", which to our mind, shows conclusively that the bill shown in Column 1 was intended to reach **any** ingredient, whether "added" or not, that would render the article injurious to the health of the person consuming it. It shows a bill that would have covered the contentions made in the present case, both by the Government and the claimant, but it differs from the present bill. The word "added" in the bill shown in Column 1 does not qualify "ingredients".

From Column 2 (the bill introduced by Mr. Hepburn), we draw the same conclusion as is drawn from the bill shown in Column 1. The word "added" is used to qualify "ingredient" in the first part of the bill shown in Column 2, but the bill in Column 2 goes further, and covers "any ingredient, or ingredients which may render the article injurious to the health of the person consuming it." The qualifying word "added" is omitted before "ingredient" or "ingredients" in the second part thereof.

The bill shown in Column 3 is an exact duplicate of

the bill shown in Column 4, and of course, the same argument would apply.

We now come to the bill shown in Column 4. The bill leaves out the word "added" entirely, and therein differs from the Act as passed, and provides, "That any article of food or drink or any article or compound intended to become an ingredient in a composition or preparation for food or drink containing substance or substances which in the quantity used, or intended to be used, is deleterious to health." This is clearly the bill that would cover the contention made by the Government in the present case, but is radically different from the bill as passed, and it shows a clear intention on the part of Congress to differentiate between the contention made by the Government in this case, under the present act, and the contention made by the claimant.

Column 5 shows a bill which is not materially different, insofar as this discussion is concerned, from the bills shown in columns 1 and 2, and again, it provides for any ingredient,---not an **added** ingredient, but **any** ingredient which may render such article injurious to the health of the person consuming it. It also, differs from the act as passed, insofar as it does not again employ the word "added", as does the present bill.

Column 6 shows a bill which is practically indentical with the bill shown in Column 5.

As to the bill shown in Column 7, we note decided changes therein. In the first place, the qualifying phrase, "which may render such article injurious to health" is changed, inasmuch as it leaves off the following: "of the person consuming it", and it does not

refer to any ingredient at all except "poisonous ingredients", and before the word "poisonous" it has "added."

None of the bills noted (except No. 3 and 4), in the above columns contain the word "deleterious."

Now we come to the present bill. What changes do we find? We find in the present bill, as follows: "if it contain any added poisonous", and, up to that point, it is the same as the clause contained in the bills shown in Columns 1, 2, 5, 6 and 7. The bill, as passed, however, proceeds as follows: "* * * or other added deleterious ingredient." This phrase does not appear in a single one of the bills as shown in the foregoing parallel columns. Not one of them contain the repetition of the word "added", and not one of them contain "deleterious," (except No. 3 and 4). The present bill, as passed, contains the phrase "which may render the article injurious to health". This phrase appears also in the bill shown in Column 7. In Columns 1, 2, 5, and 6, the phrase is as follows: "which may render such article injurious to the health of the person consuming it."

However, insofar as this discussion is concerned, the radical difference is that in the present bill, the word "added" is repeated, and in the other bills this word is not repeated. Now, there must be some reason for this distinction, for it would have been unnecessary to have repeated the word "added" in the present bill if it meant the same without the word "added".

The placing of the word "deleterious" in the present bill is also significant. If, as in all the other bills (except those shown in Columns 3, 4 and 8), it read

"ingredient," leaving out the word "deleterious," any ingredient would have been barred if it had rendered the article injurious to the health of the person consuming it, whether deleterious or not.

To summarize: Under the bills shown in columns 1, 5, 6 and 2 above, it would be necessary to prove the following:

(1) That there was an added ingredient, and that it was a poisonous ingredient, and being an added poisonous ingredient, it was one which may render such article injurious to the health of the person consuming it; or,

(2) That it contains an ingredient which may render such article injurious to the health of the person consuming it.

Under the bills shown in columns 3 and 4, it would not be necessary to prove that the ingredient was added, or that it was poisonous or deleterious. It was only necessary to prove that the article contained a substance or substances which, in the quantity used, or intended to be used, was deleterious to health.

Under the bill shown in column 7 it would be necessary to prove that there was a poisonous ingredient, and that the poisonous ingredient was an added one; and that the added poisonous ingredient "may render such article injurious to health".

Under the present Act, the following steps must be taken:

(1) You must prove that there is an added ingredient;

(2) That this added ingredient is either poisonous or deleterious; and

(3) That it may render the article injurious to health.

By a careful examination of the above summary, it must be noted that it is necessary to prove far more under the present Act (which is here given as No. 8), than it would have been to prove under the acts here given as Nos. 1, 2, 3, 4, 5 and 6.

Columns 1, 2, 5, 6.

It would be necessary to prove:

(1) Added ingredient;
(2) Poisonous;
(3) Rendering article injurious to the health of person consuming it.

or

(1) Any ingredient so rendering the article.

Columns 3 and 4.

It would be necessary to prove:

(1) Containing substance in quantity used deleterious to health.

Column 7

It would be necessary to prove:

(1) Added ingredient,
(2) Poisonous,
(3) Rendering article injurious to health of person consuming it.

Column 8

It would be necessary to prove:

(1) Added ingredient,
(2) Poisonous,
(3) Rendering the article injurious to health.

or,

(1) Added ingredient,
(2) Deleterious,
(3) Rendering the article injurious to health.

This clearly, to our mind, shows that Congress did not intend to condemn any article having a deleterious ingredient in it, even though it may have rendered the

article injurious to health. It was necessary to prove, further, that that deleterious ingredient was **added.**

(1) Reverting now to the contention heretofore made, that everything which enters into the composition of a compound article of food is an added ingredient, within the meaning of the law, and that Coca-Cola is a compound, and that therefore, the caffeine in it is an **added** ingredient, we reply:

(a) In the first place, it must be conceded that there is nothing in the language of the Act to affirmatively sustain this contention. There is no hint or intimation that all ingredients in a compound are considered as "added", or that the qualifying word "added" was intended to apply only to simple foods.

(b) In the second place, the mere reading of the Act itself would seem to affirmatively demonstrate the fallacy of this contention. The term "food" as defined in Section 6, includes "all articles used for food, drink," etc., "whether simple, mixed, or compound." Section 7 provides that "for the purposes of this Act an article shall be deemed to be adulterated * * * * In the case of food * * * * * If it contain any added poisonous or other added deleterious ingredient," etc. It is submitted that the term "food" as used in Section 7 must be taken to correspond with its definition as given in Section 6, and that reading this definition into Section 7, the clear meaning and interpretation of the provision above quoted from section 7 is that any article used for food, drink, etc., whether simple, mixed or compound, shall be deemed to be adulterated if it contain any **added** poisonous or other **added** deleterious ingredient. In other words,

the provision is directed against **added ingredients only,** with respect to mixed and compound articles of food, as well as **simple** ones. If Congress had intended as argued by counsel for libellant, to provide that any mixed or compound article of food should be deemed to be adulterated if it contained **any poisonous or deleterious ingredient,** it would no doubt have said so; but it is respectfully submitted that is not the provision which was in fact made.

(c) Furthermore, the use of the term "ingredient" would seem to indicate that Congress had in mind **mixed** and **compound** articles of food rather than **simple** ones. The word is not an apt or appropriate one to describe a foreign substance mixed with a simple food product.

For instance, if sand is mixed with sugar, it would not ordinarily be spoken of as an **ingredient** of the sugar, although it would no doubt constitute an adulteration under the provisions that an article of food shall be deemed to be adulterated "if any substance has been mixed and packed with it so as to reduce or lower, or injuriously affect its quality, or strength" and "if any substance has been substituted wholly or in part for the article." On the other hand, the term "ingredient" naturally suggests, and properly **means,** one of two or more substances, entering into the composition of a **mixed or compound** article and an **added** ingredient would therefore mean some additional and foreign substance incorporated into such a compound, after its regular and normal constituents had been used. So that it would seem that this provision with respect to added ingredients, was intended to apply especially, if not solely, to compound articles of food;

and that therefore the contention that the word "added" was used only to exclude the inference that the Act forbade the sale and transportation of simple articles of food containing inherently and naturally poisonous or deleterious substances, cannot be sustained.

Substance is defined as follows: The material of which anything is made or **constituted.**

Constituted is defined as follows: Serving to form or **compose** as a necessary part---constituting-- as chlorine and sodium are the constituent elements of salt.

Ingredient is defined as follows: A **component** part of any conglomerate.

(d) The second proviso in the fourth clause under the heading "In case of food" in Section 8 of the Act sets forth certain exceptions to or qualifications of the preceding provisions and concludes as follows:

> "**And provided, further,** that nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome **added** ingredient to disclose their trade formulas, except insofar as the provisions of this Act may require to secure freedom from adulteration or misbranding."

A proprietary food must necessarily be something else than a simple or natural article, since no person can acquire a proprietary right in such an article. It must be a mixture or a compound---in other words, an artificial preparation---and therefore it must be conceded that the clause above quoted refers to and includes compounds, mixtures and artificial preparations. But as we have seen it is the contention of counsel for libellant that the term "added ingredient" is used only to exclude those substances which occur

naturally and inherently in **simple** food products, and that as to **manufactured compound** foods, **all** the ingredients are "added" within the meaning of the Act, and therefore the word "added" was never intended to apply to such foods at all. It is needless to argue that the language of the proviso above quoted absolutely controverts this contention, and demonstrates that the word "added" was intended to apply to and qualify compound and manufactured foods as well as simple and natural ones. Again, if all ingredients in a mixture or compound are added, why repeat "added"? And the same would apply in regard to the exception under Section 8.

(2) The next contention was that everything in a mixture or compound is **added** that does not appear in a state of nature. In reply to this we say:

(a) What, under this construction, becomes of the argument that this is a statute for the protection of health? Under their construction, the following would be the result: Under a distinctive name, we could sell a compound composed of sugar, water, vanilla and digitalis, but could not sell a food composed of sugar, water, vanilla and digitalin, (digitalis being the dried leaves of an herb growing in Central and Southern Europe, and digitalin being the active drug extracted therefrom.)

A product could be made and sold containing sugar, water, vanilla and strophanthus, but you could not sell a product composed of sugar, water, vanilla and strophanthin (which is the drug taken from the Strophanthus).

You could sell a product composed of sugar, water, vanilla and the coffee bean, but you could not sell a

product composed of sugar, water, vanilla and caffeine (caffeine being extracted from the coffee bean).

The Act would also permit the sale of an article containing nux vomica, but would prohibit the sale of one containing strychnine (strychnine being a substance extracted from nux vomica).

A product could contain opium, while it could not contain morphine.

What becomes, we ask in all sincerety, of the protection to health construction placed upon this statute? This interpretation of the word "added" obliterates the purpose of the Act as being an act intended to protect the public health. Again, if this is an act to protect public health, why should Congress wish to protect any food, whether it be in a state of nature or not?

It is shown that coffee contains, naturally, caffeine, and that therefore, it is not an added ingredient. It is shown by the record that Coca-Cola is composed of sugar, water, caffeine, etc. It is further shown by the record that coffee as ordinarily served is composed of caffeine to the average extent of 1.89 grains per cup (average result of chemists) .

See record, pp. 880, 981.
Also p. 838.

The record shows plainly that the caffeine content of Coca-Cola as consumed is 1.21 grains per glass.

See record, p. 838.

The record shows that there is no difference between the caffeine in coffee and the caffeine in Coca-Cola.

See record, pp. 360, 361, 362, 428 and 437.

With more of the identical caffeine in coffee than in Coca-Cola,---the same substance that the government

claims is poisonous and deleterious,---with a construction that would allow the use of one and bar the other, again we ask what becomes of the construction that would make this a statute for the protection of health, if we are to abide by the meaning of the word "added" as given by the government?

What becomes of the health interpretation when the Act allows the use in foods of cocaine, heroin, etc., same not appearing in a state of nature, and derivatives never so appearing? This very argument goes to prove the meaning of this sub-section. It is intended to prohibit fraud and deception by **an addition** to an article of an ingredient that renders the article injurious to health. The object, purpose, intent and wording of this statute are all satisfied when it is interpreted to mean that fraud and deception are perpetrated in two ways: (1), By adulteration; (2) By misbranding.

As was held by the Circuit Court of Appeals:

> "Again, it is urged that the true test whether the deleterious ingredient is 'added' is whether this ingredient is in its natural or in an artificial form. This criterion is supposed to find support in statements made during the Congressional debates, and in the well-known fact that many natural articles of food, like fruits, contain elements which in the combination formed by the complete fruit are not materially harmful, but which, when extracted and administered separately, may be injurious. This criterion may often be a useful aid in applying and interpreting the statute, but to apply it as a hard and fast rule where artificially compounded foods are under consideration comes to saying, as in the case before us, that if coffee berries, or tea leaves, or, we take

it, the complete extract of coffee berries or tea leaves, containing the amount of caffeine now in question, were put into the compound in its manufacture, there would be no violation of the law, but that if the caffeine, and that only, which was in these same coffee berries or tea leaves, or in some other natural product, is put into the syrup, the law is broken. Alcohol surely might be considered a 'deleterious ingredient' if caffeine may be; but can we suppose that a compound food would be obnoxious to this law if it contained 5 per cent. of alcohol purchased in the market ready distilled and yet that a compound otherwise the same would be within the approval of the law though it contained 25 per cent. of alcohol distilled from grain during the process of making the compound? There has been much controversy whether 'blended whiskey' could be sold under that name, but it has never been thought to be forbidden merely because its alcohol was an 'added' ingredient. Many wines are 'fortified' by adding alcohol, and these may be obnoxious to the law for other reasons; but if the theory now under consideration is correct, they could not be sold at all, no matter how labeled. This theory must even lead us to say that if a ground or pulverized coffee or a coffee extract is so deficient in caffeine as to be below standard, the law is violated by adding from another source caffeine enough to make the coffee of full normal strength, or to say that it is a vital distinction whether the citric acid compound in any familiar and popular beverage is, at the time of compounding, squeezed from a lemon or poured from a bottle. We cannot follow the argument which brings us to these results. Not only is it without basis in the statute, but it lacks inherent cogency."

United States vs. 40 Barrels and 20 Kegs of Coca-Cola, 215 Fed., Rep., 535 (at p. 541).

(b) It will be observed, furthermore, that the Act does not refer to poisonous or deleterious **substances,** but only to poisonous or deleterious **ingredients** which may render the article injurious to health. If, therefore, the word "added" were omitted the Act would not forbid the use as an ingredient in a compound food product of a natural article of food **containing** a poisonous or deleterious substance, unless **the article itself** was thereby rendered poisonous or deleterious. For instance, apples, peaches, and in fact, practically all fruits, contain deadly poisons; yet it certainly would not be said that such fruits would be poisonous or deleterious ingredients when used in the manufacture of food products, simply because of the poisonous substances contained therein. We submit, therefore, that the word "added" was wholly unnecessary to cover the point suggested.

The language of Senator Heyburn in the discussion of the bill in the Senate, quoted in the brief of opposing counsel, was as already shown used with reference to certain provisions which are not found in the Act as it finally passed, relative to the adulteration of liquors. He explained that the use of the word "added" would negative the contention, with respect to such articles, that the presence of poisons naturally inherent in them, would constitute adulteration. We have no criticism to make of the language used by him; but he was not considering or discussing the application of the Act to **compound foods,** and therefore, his explanation has no bearing on this case.

(c) The interpretation contended for is utterly inconsistent with and contradictory of the proviso in sub-Section 2nd of Section 8, under the heading, "In case of foods," with respect to the statement on the label of the proportion of certain narcotic poisons contained in the article; and it must be conceded at this point, that not one of the poisons stated in said section appears in a state of nature; and besides derivatives are mentioned and it further must be conceded that every one of the substances included in this proviso is a poisonous and deleterious one, and therefore, according to the construction of sub-Section Fifth, Section 7, insisted on by adverse counsel, every one of them would constitute an adulteration when used as an ingredient in an article of food. Yet by Section 8, Congress permits the use of these poisonous substances that do not appear in a state of nature, and derivatives thereof, upon condition that the quantity or proportion thereof in the article be shown on the label, the purpose of the Act being, as explained by Mr. Mann, in language heretofore quoted, not to determine what people should eat or drink, but rather, to permit them to know what they are eating or drinking.

(d) All confectioneries are compounds, as the name implies, and the Act provides that confectionery is adulterated if it contains any ingredient deleterious or detrimental to health. The qualifying word "added" is not used in this connection, and therefore, according to the argument on behalf of libellant, ingredients containing poisonous or deleterious substances in their natural state, would constitute adulteration in confectionery. But the most common substance used in the manufacture of confectionery (except of

course, sugar), is chocolate, which contains not only about .28 per cent of caffeine, but also theobromine, which is an alkaloid closely allied to caffeine in its chemical composition and physiological effect.

(Record, pp. 358, 359, 484, 485, 989.)

And it is very probable that there are very few, if any, ingredients used in the manufacture of either confectionery or foods which do not contain poisonous or deleterious substances in some proportion. But the ingredients themselves would not necessarily be poisonous or deleterious because they contained deleterious or poisonous substances. If, however, any of the ingredients in confectionery are deleterious or detrimental to health, it constitutes an adulteration; whereas, in the case of foods an ingredient must be not only poisonous or deleterious, but also added. We submit, again, that the word "added" manifestly means something; and that the reasonable and proper interpretation of it is that it refers to something which is not a natural or normal constituent of the article in which it is found, but is an addition to it.

(e) It will not be contended that the Food and Drugs Act forbids the sale of pure caffeine, or its use in food compounds if any one desires to so use it. The same is true of opium, cocaine, arsenic, strychnine and any other poison. If, then, any person can buy poisonous and deleterious substances and use them in making foods, why and to what extent should Congress prohibit the manufacture and sale of articles of food in which they are present as ingredients? The answer is found in the language of Mr. Mann already hereinbefore quoted; that while Congress does not intend to say what people shall eat or drink, it

does mean to provide regulations whereby people can know what they are eating or drinking. Therefore, if any one puts into a known and recognized article of food an ingredient which does not belong to it, according to the standard by which it has been known and sold, then if the ingredient is so far poisonous or deleterious that it may render the article injurious to health, it is an adulteration; while on the other hand, if the article contains only those ingredients which are recognized as belonging to it, then it is not adulterated, even though it contains some ingredient which might be classed as poisonous or deleterious. The only exception to this is that as to certain narcotic poisons, which become deterimental by use, the Act requires that the quantity or proportion be stated on the label. The list of substances included in this proviso was thought to include "all those which are habit-forming" or "which in any way become deleterious by their use."

Statement by Mr. Mann, Cong. Rec., June 22, 1906, p. 9000.

Since, therefore, Congress has permitted the use in articles of food of substances which are confessedly habit-forming and deleterious, can it be assumed that it intended to prohibit the use of caffeine, which is admitted to be far less harmful than any of those enumerated in the proviso referred to, and which was and had been for several hundred years prior to the passage of the Act, an ingredient in food articles of almost universal use?

It is interesting to note in this connection that the proviso under consideration originally required a statement on the label of the quantity or proportion

of "opium, cocaine **or other poisonous substance**" contained in the article. After full consideration, however, the words "other poisonous substance" were eliminated because they were thought to be too indefinite and uncertain, and the list of substances now found in the proviso was adopted because it was believed to include all substances which were habit-forming or which might become deleterious by use.

Cong. Rec., June 22, 1906, p. 9000.

It is said in this connection, that the Government does not condemn any food that contains only Nature's poison, placed there in Nature's own combination, but it does condemn all foods into which man puts 'added' or additional poison.

In other words, as applied to this case, the Government does not condemn the use of tea and coffee which are assumed to contain caffeine in "Nature's combination," and in greater quantities than is to be found in Coca-Cola, but it does condemn caffeine when man puts it into an artificial syrup.

It will be found, however, that in the first place, the testimony of every witness on behalf of the Government on this point is an arraignment and denunciation of tea, coffee, and every other article in which caffeine is found; that in the second place, when taken in tea and coffee, caffeine is not taken in its natural combination, but is freed in the roasting or preparation, and many of the other elements with which it was combined by nature are drawn off (Rec. pp. 360-428); and that, in the third place, the effect of caffeine, whether taken in tea, coffee, water or other substances, is admitted by the Government's witnesses to be always the same. (Rec. p. 437).

(3) A final position is now taken concerning the meaning of "added," and as we gather it, it is as follows:

An added ingredient in a mixture or compound is an ingredient that is not present as a normal constituent, of foods of the same general class, in similar quantity and character.

(a) The question then arises, from what do we determine the class? The answer must be, From the evidence. The query is then: What does this evidence show? Only three drinks are mentioned in the record, to-wit, coffee, tea and chocolate, and caffeine is found in all of them, and in the two former in greater quantity than in Coca-Cola, and in the latter in less quantity. No other class is mentioned in the evidence; all three are soft drinks. Therefore, according to this record caffeine is a normal constituent of the class to which Coca-Cola belongs and is not added.

(x) The Government contends that this standard should have been left to the jury. While this might raise a question of the constitutionality of the Act under the authority of the case of Louisville & Nashville R. R. Co. vs. Commonwealth, 99 Ky. 132, still we have no quarrel with the contention.

It has been held:

> "Where there is no standard, the court must fix for itself a standard, based upon the evidence before it."
>
> **Wilson vs. Wilson**, 86 J. P., 175 (1904).

The evidence must be confined to the issues as made by the pleadings--the pleadings clearly set out the standard, to-wit, a product, Coca-Cola, that contains caffeine, and the evidence shows only the same standard.

We contend, therefore, that even if this question was one for the jury, there was no dispute as to this fact, to leave to the jury. The allegations of the libel and the evidence left no dispute of fact. This quite sharply differentiates this case from that of **Washburn vs. United States,** 224 Fed. Rep., 395, (397, 398):

> "It thus appears that the court, in its charge, did not permit the jury to determine, on the first count, of what the article of food known as a macaroon consisted, but charged them as a matter of law that it consisted of cocoanut, and the white of eggs, and that they might find the product adulterated if the glucose, which the respondent admitted the glucose, which the respondent admitted it put into the cakes, reduced or lowered or injuriously affected their quality or strength. The respondent, in view of the evidence, was entitled to have the jury, before reaching a conclusion upon the question of adulteration, determine what a macaroon was. Indeed, it was essential, in view of the theory on which this branch of the case was tried, for them to do so in order to reach a correct result. If the jury found that it consisted of ground almonds, sugar and the white of eggs, the respondent was entitled to be discharged, for there was no evidence that it shipped in interstate commerce macaroons made of almonds, to which glucose was added. Then again, if the jury found that a macaroon consisted of cocoanut, sugar, the white of eggs and glucose, the respondent was entitled to be discharged, for the evidence disclosed that the article which it shipped in interstate commerce was so composed. There was only one contingency presented by the evidence and the allegations of this count on which the respondent could be found guilty, and that was in case the jury found that a macaroon consist-

> ed of cocoanut, sugar, and the white of eggs, and that the respondent, by adding glucose, thereby reduced or lowered, or injuriously affected its quality or strength. This requested instruction should have been given, and the refusal to do was error."

In other words, we contend in this case, that there was no question to leave to the jury.

(b) From the pleadings, as has heretofore been shown, we find a definite standard set out. We are not charged with adulterating a soda-fountain syrup; there is a definite and specific charge of adulterating Coca-Cola by adding caffeine thereto. The pleadings must define the issue.

(x) While it is true that the Act does not set up a standard for food products (and to this extent, it might be construed as being indefinite and uncertain), yet proper pleadings require that a standard be set out, and with this, the Government complied.

> "The Pure Food and Drugs Act, June 30th, 1906, ... is not void for uncertainty and indefiniteness, in that no standard of grade, quality or purity is prescribed, but the determination of the standard is left to the courts, as such objection may be obviated by requiring specific and properly drawn pleadings."
>
> **2nd Headnote, United States vs. 420 Sacks of Flour,** 180 Fed. Rep. 518.

(y) The above thought is most aptly expressed by the learned District Judge as follows, in the case now before this Court:

> "The conclusion thus reached is strengthened by a consideration of the pleadings in this case. In the libel it is alleged that the food product

'Coca-Cola' which it was sought to condemn is adulterated in that it contained an 'added' ingredient, caffeine, which was and is both poisonous and deleterious. Yet the entire proof unquestionably shows that the caffeine contained in the article Coca-Cola is one of its regular, habitual, and essential constituents, and that without its presence, that is, if it were decaffeinized, so to speak, the product would lack one of its essential elements, and fail to produce upon the consumers a characteristic if not the most characteristic effect which is obtained from its use. In short, Coca-Cola without caffeine would not be Coca-Cola as it is known to the public, and would not produce the effect which the Coca-Cola bought by the public under that name produces, and if it were sold as 'Coca-Cola' without containing caffeine, the public buying it under this name would be in fact deceived."

United States vs. Forty Barrels and Twenty Kegs of Coca-Cola, 191 Fed. Rep., 431 (at pp. 437-438).

(c) Suppose there is no class, and suppose an entirely new product is gotten up? What then becomes of the method of determining the class?

(d) The next query is, What evidence is there before this Court that caffeine in similar amount is not and was not an ingredient of soft drinks?

(e) Under the "public health" theory that the Government propounds, how would this definition apply?

(x) The purpose of the word "added" as given by the Government is,

"To prevent a technical construction which might exclude from interstate commerce articles

of food containing in harmless amounts, and in the form found in nature, certain poisonous ingredients characteristic of such foods."

This reason for the use of the word "added" absolutely destroys the purpose that the Government wishes to give to this Act. Why exempt, if this element is poisonous?

(y) And if not so poisonous as to render the article injurious to health, then the word "added" is not necessary to so exempt, for under the Act, it must "render the article injurious to health," and if the ingredient did so render it, then, if this is a health statute, why exempt it? (See discussion in regard necessity of word "added" on pp. 58 et. seq.)

(z) Again, the statute does not refer to **elements**, but **ingredients**. For example, prussic acid is an element of a peach, but it would not be an ingredient of peach preserves.

As an illustration of the Government's theory as to the result that would follow our construction, the case of the **United States vs. Lexington Mill & Elevator Co.**, is cited, and the Government contended that if the flour in that case had been given the distinctive name, "Lexingtonia," that there would have been no violation of the Act.

This is certainly not the construction of the claimant in this case. In the illustration given, we have a standard, flour; to the flour had been added nitrites, and even though there was a distinctive name, if the nitrites were poisonous or deleterious the article would not be saved by its distinctive name.

The illustration "Lexingtonia" is based on a misconception of what is meant by a distinctive name.

The article under consideration is flour---which has a well recognized standard of manufacture, and is composed of well known ingredients. If a manufacturer of flour adds to it a deleterious or poisonous ingredient, which may render it injurious to health, he is guilty of adulteration; and he cannot escape the penalty by merely giving his flour a fancy trade name. The Court would always look through the **form** to the **substance** of the transaction to ascertain whether the article was in fact "a mixture or compound" known as an article of food under its own distinctive name, or whether it is merely a standard article of food to which foreign ingredients have been added.

We agree that there must be a standard. The question is: How must this standard be determined? The adjudicated cases show that the standard is that which usage has made: What does the manufacturer mean; what does the public understand? What does the evidence show, and what standard does the pleading adopt?

We say, that in this case, the standard is Coca-Cola; that Coca-Cola contains caffeine; and the libel admits that the standard is Coca-Cola, and that standard is a product that contains caffeine.

(4) It is said, further, that the construction placed on the Act by the trial judge leaves the manufacturer free to put arsenic, strychnine or any other poison into a food product, and label it as a compound, and then sell and transport it without any interference or liability so far as the Act under consideration is concerned.

We think, as already argued, that it is true that the Act does not, and was not intended to, interfere with

the manufacture, sale or transportation within the United States of poisonous or deleterious foods, unless they were adulterated or misbranded; although no doubt one who would manufacture and sell such would be amenable under some law. It is quite clear at any rate, that under the provisions of sub-Section Second of Section 8, one can use opium, cocaine and the various other poisonous substances therein mentioned in the manufacture of foods if he states on the label the proportion used.

There is nothing "startling" about the proposition that a law does not affect or bear on conditions beyond its scope. There may be many abuses in the manufacture and sale of food and drugs which are not within the purview of the Act in question; but that fact, if it be a fact, is wholly aside from the question. The Act does not purport or attempt to prohibit the sale or shipment in interstate commerce of anything except those articles of food and drugs which are adulterated or misbranded within the definitions of the Act itself; and it cannot be extended to an article not within those definitions merely because it may be conceived that the Act should be broader in scope than it really is.

As was said in the opinion of the Circuit Court of Appeals in this case:

> "We do not overlook the argument that the Act makes no distinction between compounds known at its date and those thereafter devised, and so that the construction which prevents an inherent element from being considered as 'added' leaves the manufacturer at liberty to use any poison he pleases in making up his compound 'food,' provided only he gives to it and sells it under a dis-

tinctive name. This conclusion must, to some extent, be granted, yet it loses most of its apparent force when we remember the real purpose of the Act and observe the express direction of the law that the maker of a proprietary food need not disclose its contents if he states the place of manufacture. It would seem a proper provision that if a proprietary food contains any ingredient fairly subject to be called deleterious, the maker should disclose on the label its presence and its extent. just as is required in numerous specific instances, but we cannot make such a law. On the other hand, it is difficult to suppose that Congress intended absolutely to forbid the use in any compound of any element that a jury might later call 'deleterious;' but it must be one thing or the other. From this point of view, the prohibition is either absolute or nonexistent. The best known habit-forming drugs are selected, and implied permission is given to allow their use in compounding products for sale, provided they are named on the label; but as to the great mass of other food and drug elements which are undoubtedly deleterious if used to excess, there is no provision for naming them on the label. If they are within the definition of 'added deleterious ingredients,' they may never be used under any conditions or in any quantity that may be injurious to health, even though they are described in the largest of letters on the outside of the package. This way of reading the statute would practically greatly impede the progress of synthetic chemistry in foods, and we think it distinctly more unreasonable than it is to suppose that Congress, having selected and regulated the use of those things known to be particularly dangerous, thought best not wholly to forbid at that time other things from which no serious danger need be anticipated."

United States vs. 40 Barrels and 20 Kegs of Coca-Cola, 215 Fed. Rep., 535 (at p. 542).

The inquiry, however, is wholly immaterial so far as this case is concerned. We are not dealing here with an article concocted and put on the market subsequent to the passage of the Food and Drugs Act, but with one the manufacture of which was commenced some twenty years before that law was passed, and which has been manufactured and sold in continually increasing quantities and under the same formula, up to the time of the institution of this suit. To say that such an article is adulterated by the presence in it of a substance which has constituted one of its essential constituents for over twenty years is, we submit, a perversion of the language.

(5) The statement in brief of the adverse counsel, in this connection, that the process of manufacture of this article has not been uniform because prior to 1902 it contained "an appreciable cocaine content," which was afterwards eliminated, does not require more than passing notice. The fact is, as hereinbefore stated, that it was always the purpose of the manufacturer to eliminate all the cocaine and use only the residuum from the coca leaves; that in the trial of a case in 1902, a chemist testified that an analysis he had made disclosed the presence of 1-400 of a grain of cocaine, in an ounce, or 480 grains, of Coca-Cola syrup; and that thereupon the manufacture of the ingredient in which the coca leaves were used was placed in the hands of a chemist who guaranteed to eliminate all trace of cocaine, and has since done so.

(Record pp. 1624-1626; 1688-89).

And the principal witness of libellant admits that the quantity or proportion of cocaine testified to would not, so far as he knows, have any appreciable effect. (Record, pp. 1715, 1716, 1725, 1726, 1727).

If the presence of the substance would not have any appreciable effect, then its elimination would not operate as an appreciable change.

> "Omission of ingredients not essential to its purpose as a food product, is not in violation of the statute. It is open to the manufacturer to improve common articles of food. The food must contain all of the ingredients that are adapted to use as a food product, and if nothing is eliminated except such ingredients as could be dispensed with without injury to the food as a food product, there is no violation of the statute."
>
> **People vs. Jennings,** 94 Northwestern, 216; (132 Mich., 663).

And finally, another change is noted: The difference between the bottled and fountain syrup. It shows a difference in caffeine as follows: In the bottled syrup, it is 1.19 grains to the fluid ounce; and in the fountain syrup, 1.21 grains to the fluid ounce. This was certainly not a change that would upset the formula. The product was not changed. Certainly it was not such a change as would affect the trade mark Coca-Cola. There is again, no charge that we have violated Section 7, (Foods), 3rd. The caffeine in the fountain syrup remains the same, and the change was only to meet the requirements of the bottled product.

(6) It is also argued that the title of the Act indicates that its purpose is to prevent the manufacture, sale or transportation of foods which are **poisonous**

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or deleterious as well as those which are **adulterated or misbranded**; and that therefore if the food product in controversy here was poisonous or deleterious it would fall within the scope and inhibition of the Act, even though it was not adulterated within the proper meaning of that term.

We are unable to see that this argument is of any benefit to the libellant. The act, both in its caption and body, clearly recognizes that there is a distinction between **adulterated** foods, and **poisonous** or **deleterious foods.** It is quite conceivable that a food might be adulterated without being either poisonous or deleterious; and on the other hand, there are many foods which are not adulterated which might be said to be poisonous or deleterious in the sense in which it is contended this product is: as, for instance, coffee, tea, chocolate, whiskey and other intoxicants, etc. The libel in this case is not based on the averment that Coca-Cola is within the inhibition of the Act because, independent of any question of adulteration, it is **in itself** poisonous or deleterious, but upon the ground that it is adulterated; and it would be incumbent on the libellant to sustain this averment, and prove the adulteration, before it would be entitled to a decree on this branch of the case. Therefore, if it were true that the Act itself would prohibit the manufacture, sale or transportation of Coca-Cola if it was poisonous or deleterious, though not adulterated, that would not help the libellant in this case, at least without an amendment of the libel. But as a matter of fact, as hereinbefore shown, the act does not deal with **poisonous** or **deleterious** as distinguished from **adulterated** foods at all, except only in Section 11, which prohibits

the importation into the United States of foods which are either (1) adulterated or misbranded or (2), "otherwise dangerous to the health of the people of the United States." Clearly, therefore, Congress recognized that there are, or may be, foods which are "dangerous to health"---that is, poisonous or deleterious---which are not adulterated; and clearly, also, Congress did not deem it necessary or proper to prohibit the manufacture, sale or transportation of food products which might be considered dangerous to health, but were not adulterated, except only when they were brought in from foreign countries.

It is respectfully submitted, therefore, that the District Judge and the Circuit Court of Appeals were correct in the conclusion that caffeine in Coca-Cola was not an added ingredient, and therefore it did not constitute an adulteration under the provisions of the Food and Drugs Act.

(PART VII.)

IS CAFFEINE A POISONOUS OR DELETERIOUS INGREDIENT?

We do not, however, rest our right to an affirmance of the judgment of the lower court on this point solely on the proposition that the caffeine in the product in controversy is not an **added** ingredient. The motion for peremptory instructions was based on the grounds, (1), that the caffeine was not an **added** ingredient, and (2), that giving the evidence "the strongest possible construction in favor of the government," the caffeine in the product was not "**a poisonous or deleterious** ingredient within the purview of the Pure Food Law, such as would constitute an adulteration in this product, Coca-Cola syrup."

(Record, p. 1812).

The Court sustained this motion on the first ground without passing on or determining the question raised in the second ground.

(Record p. 1894).

The statement in the brief for appellant that the court held that there was such conflict in the evidence as to require the submission to the jury of the question of deleteriousness, if material, is erroneous. The Court said:

> "**Assuming**, for the purpose of determining this motion, that if the caffeine* * * * *is an added ingredient* * * * *there is such conflict in the evidence as to whether it is a deleterious ingredient * * * * *that the question of its qualities and effects should be submitted to the jury the preliminary question arises," &c.
>
> Rec. p. 1894.

As we understand the law, the appellee is entitled to still insist and rely on the second ground of its motion in this court, and if this court is of the opinion that the District Judge erred in the reason on which he based the direction of a verdict in favor of the defendant, but is also of the opinion that the verdict should have been directed for other reasons, the judgment will be affirmed.

A defendant in whose favor a verdict has been rendered by direction of the court is entitled to support such verdict upon any ground which the evidence in the record permits, and of which he has not by his conduct waived the right to himself.

Whitney vs. N. Y. N. H. & H. R. Co., 102 Fed., 850 (Cir. Ct. of Appeals, First Circuit).

When a defeated party has been permitted to present, and has introduced, all the legal evidence which he offered, has rested his case, and the court has instructed the jury to return a verdict against him upon a specified, but untenable ground, its action is error without prejudice and will not warrant a reversal of the judgment, where it is clear beyond doubt from a bill of exceptions which contains all the evidence, that it would not sustain any other verdict.

Bank vs. W. U. T. Co., 141 Fed., 522, 527 (Cir. Ct. of Appeals, Eighth Circuit);

See also:

United States vs. Norton, 107 Fed., 412;
Currier vs. Trustees, 117 Fed., 44; 38 Cyc., L. & P., p. 1592;
Grimes D. G. Co. vs. Malcolm, 164 Fed., 483;
Sullivan vs. Iron Silver Co., 143 U. S., 431.

It is undoubtedly true, and it must be conceded, that under sub-Section Fifth of Section 7, the burden of

proof was on the appellant in this case to prove (1) That caffeine was an added ingredient; (2), That it was a poisonous or deleterious ingredient; (3), That such poisonous and deleterious ingredient may render the article injurious to health.

The case of **United States vs. Lexington Mill & Elevator Co.,** is authority for the third proposition, and it is therein held that the controlling question under the Food and Drugs Act is not whether the ingredient is poisonous or deleterious, but whether this ingredient renders the article injurious to health.

We have endeavored heretofore to show that caffeine under the act, is not an **added** ingredient. We will now endeavor to show that it is not a poisonous or deleterious ingredient, and certainly not a poisonous and deleterious ingredient such as would "render the article injurious to health."

We therefore take up the question:

(PART VIII.)

IS THE CAFFEINE CONTAINED IN THE PRODUCT COCA-COLA, A POISONOUS INGREDIENT, OR A DELETERIOUS INGREDIENT, WHICH MAY RENDER SAID PRODUCT INJURIOUS TO HEALTH, SO AS TO CONSTITUTE AN ADULTERATION OF THE PRODUCT WITHIN THE PURVIEW OF THE FOOD AND DRUGS ACT?

We concede that in discussing this question we must give the evidence the strongest construction of which it is properly susceptible in favor of the apellant, and if there is any material evidence which can properly be construed to sustain the affirmative of the question then it becomes one to be determined by the jury, and the direction of a verdict in favor of the defendant could not be sustained on this ground. We concede, also, that there is much **opinion** evidence to sustain an affirmative answer to the question **if the witnesses were correct in their views as to what it takes to constitute a poisonous or a deleterious substance within the meaning of the law.** It is our contention, however, that there is really no conflict in the evidence as to what caffeine is, or how it is used, or the effect it produces; that the question whether it is a poisonous or deleterious substance, the facts not being disputed, is merely one of the proper definition of the terms "poisonous" and "deleterious," as used in the Act, and is

therefore a question of law to be determined by the court; and that when the terms are properly defined and limited as the law intended they should be, there is no material or substantial evidence to justify the inclusion of caffeine within either of them.

The undisputed evidence is that caffeine is a vegetable alkaloid, which is found naturally in the berries of the coffee plant, the leaves of the tea plant, in **Paullinia sorbilis**, a Brazilian plant, in the nut kernels of the Cola tree, in the leaves of the Brazilian holly (**Ilex Paraguayensis**), and other vegetable growths. It is the stimulating principle in the beverages coffee, tea, and mate, and in guarana, which is a paste made from the leaves of **Paullinia sorbilis**. It is also present in small quantities in coca and chocolate, the principal stimulant in which, however, is theobromine, another alkaloid closely allied to caffeine in its chemical constitution and its physiological effects. In one form or another, caffeine containing substances, principally beverages, are consumed in enormous quantities by the human race in every quarter of the globe, and have been for hundreds of years. The world's consumption of coffee during the season of 1909-1910 was over 2,300,000,000 pounds, containing about 1.3 per cent. of caffeine; the consumption of tea during the same period was about 1,200,000,000 pounds, containing about 2.75 per cent. of caffeine; and the consumption of mate, or Paraguayan tea, made from the leaves of the Brazilian holly, 110,000,000 pounds, containing about 1.25 per cent. of caffeine.

See testimony John F. Queeny, Record, p. 1064.

There is evidence that: caffeine acts on the human system as a nerve, brain and muscle stimulant. If

used to excess, its effects would undoubtedly be injurious to any person; and if used at all by infants and very small children, or persons suffering with certain kinds of disorders, especially those affecting the nervous system, its effects **might** be injurious. On the other hand, the evidence all indicates that the effects of caffeine, even when taken in excessive quantities, are of a temporary and transitory character, and no witness in the case has ever known or had any direct information of any case of death resulting from the use of caffeine. It is true that on the hearing several of the witnesses on behalf of the libellant testified that a man named Zenetz and another named Allardt had reported in a German periodical some cases of death from the administration of caffeine; while the witnesses on behalf of the appellee contended that the reports did not indicate that in any of these cases the deaths of the patients resulted from caffeine. Conceding that, for the purposes of this hearing, this controversy should be decided in favor of the appellant, it results that two German physicians have **reported** two or three deaths from the misuse of caffeine, and that with the exception of these reports neither the literature nor the wide experience and information of the many eminent experts who testified in this case afforded any instance of death resulting from the administration or use of caffeine. In this respect it is less harmful than common salt, the excessive use of which has frequently resulted in death, as testified by a number of witnesses.

The quantity of caffeine consumed in Coca-Cola, as hereinbefore shown, is about 1.21 grains in an eight-ounce glass as served at fountains, or about 1.19 grains

in an eight-ounce bottle. The quantity of caffeine in a five-ounce cup of ordinary black tea is about 1.54 grains; in an eight-ounce glass of cold tea, about 2.02 grains; in a five-ounce cup of coffee diluted with milk, in the proportion of three-fifths coffee and two-fifths milk, 2.61 grains; and in a two-ounce cup of after-dinner coffee, 1.74 grains.

Testimony J. W. Mallet, Record, p. 838;
See also, Testimony Charles E. Caspari, Record, pp. 879-880;
See also, Testimony John M. McCandless, pp. 978-981.

And it is conceded by the witnesses for the libellant that the physiological effects of caffeine as it exists in tea and coffee are exactly the same as its effects in Coca-Cola.

Record, pp. 360, 361, 362, 428.

It is also shown that caffeine-containing beverages, and especially tea and coffee, are recognized in civilized nations the world over as proper and legitimate articles of diet; that they are furnished as such in public institutions, such as hospitals, asylums, penitentiaries, etc.; and are included as part of the rations furnished by the United States---the libellant in this case---to its soldiers, sailors, prisoners, etc.

The propositions on which it was sought by the testimony of the expert or opinion witnesses examined on behalf of the libellant to establish the contention that the caffeine in Coca-Cola is a poisonous or a deleterious ingredient, "which may render such article injurious to health," were substantially as follows:

1. That caffeine **may** produce injurious results, if taken in excessive quantities, or by children or ner-

vous people; and that therefore, it is an ingredient which, in the language of the Act, **may** render the article in which it appears injurious to health.

2. That caffeine is a **drug**, and being a drug it has no proper place in an article of food, and therefore it constitutes when put into an article of food a poisonous, or at any rate a deleterious, ingredient within the meaning of the Act.

3. That all **stimulants** are deleterious; that caffeine is a stimulant; and therefore caffeine is deleterious.

4. That caffeine is **a habit-forming substance**; and the use of habit-forming substances is necessarily and inevitably injurious.

5. That caffeine contains nothing of food value, and is not a normal constituent of the body; that therefore it is not a proper article of food; and that not being a proper article of food when it is used as such it is deleterious and may injure the health.

It is not denied that the libellant has introduced a number of witnesses whose **opinions** sustain each of these propositions; but on the other hand, we think the same witnesses demonstrate that to apply these propositions to the Food and Drugs Act, and to construe it in conformity to them, would reduce it to an utter absurdity.

1. For instance on the first proposition, it is undoubtedly true that the excessive or improper use of caffeine **may** produce injurious results; but if the Act is to be construed literally, to prohibit as deleterious any substance the use of which **as** a food or **in** a food **may** result injuriously, the human race would be absolutely without food, and would necessarily **starve to**

death. For the libellant's witnesses admit that every substance known or used as food will produce injurious results if taken to excess; and that there is hardly an article of food which may not be injurious to some people, even if taken in moderate quantities. A person whose digestion was out of order could not eat mince pies with impunity;one afflicted with rheumatism might be injured by eating tomatoes, strawberries, or other acid fruits; a person with Bright's disease should not eat sugar or certain kinds of meat; and there are people who are injuriously affected by such common articles of food as eggs and milk. And so if the theories of the libellant's witnesses should be carried to their legitimate conclusions, it is to be held that every food substance is to be branded as deleterious under the Act, the use of which by **any** person, may result in injury; and if on the theory of "once a poison, always a poison," a substance, the use of which in **large** quantities may result injuriously, is to be prohibited as deleterious under the Act in **any** quantity, we repeat the Act will absolutely deprive humanity of the right to eat anything. For there is no substance so wholesome that it will not be injurious to **some** people in **ordinary** quantities, and to **all** people in **excessive** quantities.

We think the true rule for the construction of the Act in this regard is stated in an opinion by Mr. Julius M. Mayer, at the time Attorney-General for the State of New York, which was printed in connection with the discussion of the Food and Drugs Act, as part of the Congressional Record for June 22, 1906, (page 9293), as follows:

> "The police power of the State is exercised to safeguard public health and prevent deception, but that does not mean, where no misrepresentations are held out and no deception is practiced, that a statute can go to the extent of **legislating for the exception rather than for the rule.** In considering foods, (as distinguished from medicines) we must have in mind that **a food is regarded as healthful which can safely be eaten by the mass of the people,** and although sugar, for instance, may be unhealthful or distasteful to some, it is recognized as healthful food for all but the exceptions."

No witness in this case testifies that the health of a normal, healthy person, or the health of the majority of the people who consume them, is injured by the moderate use of caffeine-containing beverages. On the contrary, most of the libellant's own witnesses admit that the majority of people who use them moderately are not apparently injured by them.

Conceding, therefore, that caffeine may produce injurious results if taken in excessive quantities, or by people who should not take it, we say that it is in that respect no different from all other food substances, and that fact does not make it a poisonous or a deleterious substance within the meaning of the law.

2. On the proposition that caffeine is a deleterious ingredient when used in an article of food because it is **a drug**, the libellant's witness get themeselves into an equally untenable position. For a drug as they all practically admit, is any substance which is used as a medicine, or to produce a therapeutic effect; and many substances are used as drugs and also as foods. For instance, sugar, honey, starch, salt, pepper, lico-

rice, ginger, alcohol, and even water are all used as medicines to produce therapeutic effects and are listed in the Pharmacopoeia as drugs; and yet all of them are used much more extensively in foods than as drugs. The record shows that the total amount of caffeine consumed in the United States in the year 1909 was about 18,000,000 pounds, or about 3.80 grains per diem for every man, woman and child on the basis of a population of 90,000,000. The total amount used in the form of drugs was about 90,000 pounds, or about 1-200 of the total consumption; the balance being used in foods. And so while caffeine is listed in the Pharmacopoeia, and is often given as a medicine, its use in articles of food is incomparably more extensive than its use as a drug, and if the Food and Drugs Act prohibits its use as an ingredient in foods because it is a drug, then sugar and honey and salt and all the other substances enumerated above, and a vast number of others, would have to go with it, which of course is absurd.

3. The proposition argued so seriously by a number of these learned experts that all **stimulation** is hurtful and injurious and that because caffeine is a stimulant it is therefore necessarily deleterious and probably poisonous is still more preposterous when followed out to its final analysis. For the witnesses all admit that stimulation is absolutely essential to life; that one cannot move or think or breathe without stimulation; and as stimulation is not in itself deleterious, but is necessary, it follows that the agencies which produce stimulation are, when used properly and not immoderately, direct and valuable aids in the performance of the functions of life. The argument,

of course, is directed against excessive, or immoderate stimulation, which may result in injurious consequences just as excessive or immoderate eating would; and the error into which the witnesses for the libellant have fallen is that they do not distinguish between deleterious **substances**, the direct and primary effect of which is to injure the body and impair its faculties, and deleterious **results** following the **improper** use of legitimate and proper articles of food.

The direct effect of caffeine as testified by libellant's witnesses is to stimulate the brain and heart and muscles and enable them to perform their normal functions better, and to enable the body to utilize more energy than it otherwise would. They contend, however, that this is ultimately deleterious because it involves the expenditure of energy and results in fatigue.

Testimony L. F. Kebler, Record, pp. 314, 315;
Testimony Louis LeRoy, Record, p. 375;
Testimony Wm. F. Boos, Record, pp. 409, 436;
Testimony S. S. Cohen, Record, p. 507;
Testimony Maurice V. Tyrode, Record, p. 528;
Testimony Albert P. Matthews, Record, p. 664.

As the performance of the normal functions is the proper purpose of the organs of the body, and as stimulation of some kind is necessary to enable the organs to perform their normal functions, we submit that it is the veriest sophistry to say that because the performance of the functions involves the expenditure of energy and results in fatigue, therefore a substance which produces stimulation is a deleterious one. The expenditure of energy is not an evil or an injury to the system, neither is fatigue. Both are natural and

necessary incidents in the history of life; and if not carried to excess, and if compensated for by proper food and rest, they are not injurious, but beneficial, to the system, just as it is better that a machine should be operated and should perform its normal functions than that it should rust out in idleness. It must be conceded that the better the organs of the body perform their normal functions the better is its condition, and therefore anything which enables the organs to perform their functions better cannot be said to be deleterious **because of that fact.**

It is submitted that the evidence of the libellant demonstrates that the question **how much** stimulation or **what kind** of stimulation humanity shall use cannot be determined on the theories of experts, or regulated by any fixed rules of law. The questions depend upon the age, health, temperament and personal idiosyncracies of each individual, and more or less also, upon the condition by which he is surrounded. Men are somewhat like horses in this respect; some are so nervous and high-strung that the whip and spur cannot be safely used on them at all; others are so sluggish and inert that they need continual stimulation; and the vast majority are between the two extremes, and need and are benefited by moderate stimulation but should not have too much. For this reason, a law which should undertake to regulate the extent to which the whip or spur should be used on horses, or to abolish their use altogether, would be impracticable; and one which should undertake to prescribe the character or degree of stimulation which mankind should take would be equally so.

And so we most respectfully submit that there is nothing in the Food and Drugs Act to justify the assumption that Congress intended to declare, and nothing in the record to justify a jury in finding, that all substances producing stimulation are poisonous or deleterious when used as ingredients in articles of food.

4. A number of the libellant's witnesses testify that caffeine is, in a measure at least, a habit-forming substance and that therefore it is deleterious. They all admit that caffeine is not in the same class in this respect with opium, morphine, cocaine, etc.; and one of them, Dr. Witherspoon, of Vanderbilt University, admits that he has never considered caffeine a habit-forming drug at all "until I noticed it in this."
(Record, p. 345).

And all the claimant's expert witnesses testify positively and emphatically that caffeine is not a habit-forming substance at all in the sense in which that term is scientifically used and understood, or in any sense except as any other food substance may be said to be habit-forming if one gets accustomed to eating it at certain times; as, for instance, if one should form a custom of eating eggs for breakfast and should follow it so long that nothing else would exactly take their place.

But conceding to the libellant the full force of their testimony on this point, and conceding, therefore, that there is evidence from which the jury might have found that caffeine is in some degree a habit-forming substance; it is certain that the framers of the Food and Drugs Act did not so consider it, and therefore it cannot be so classified in the construction and application of that Act.

We have already called attention to the fact that in Section 8 of the Act a list of substances is set forth, the failure to state on the label the "quantity or proportion" of which in any article of food is declared to constitute the offense of misbranding. The substances included in this list are morphine, opium, cocaine, heroin, alpha, and beta eucaine, chloroform, cannabis, indica, chloral hydrate, and acetanilide, and any derivative or preparation of any such substances. A similar provision is made in the same section as to drugs, the only difference in the two lists being that in the case of drugs alcohol is also included among the substances the quantity or proportion of which is required to be stated on the label. These provisions were inserted in the Act because the substances named **are habit-forming**, and it was deemed proper that the purchasers and consumers of food and drugs should know what "quantity or proportion" of habit-forming substances they were getting; **and the determination was reached, after careful investigation, that this list included all substances that could properly be considered as habit-forming.**

As the bill was originally drawn this clause applied only to drugs, and provided that an article should be deemed to be misbranded "if it fail to bear a statement on the label of the quantity or proportion of any alcohol therein or of any opium, cocaine, **or other poisonous substance**, which may be contained therein." Afterwards, it was changed so as to read as it now appears in the Act; and there was considerable discussion in Congress on the subject of this change and the reasons for it. Mr. Mann explained that the change was made because no one knew what "other poison-

ous substances" would cover; that it would lead "not only to litigation unending, but to a confusion worse confounded," because "the question of a substance being poisonous or not might depend on the quantity which was taken."

Cong. Rec., June 22, 1906, p. 9000 et. seq.

And Mr. Hepburn, another member of the Committee, in the course of the discussion said:

> "Who is to define what is a poison? The dangerous poisons. those that we most frequently come in contact with, are named in this amendment of the committee, and we will have the good result of having them named here."
>
> Ib., p. 8999.

And Mr. Mann, the Chairman of the Committee, said again:

"The reason we did not insert 'other poisonous substances,' as I have said before, is because no one knows what are poisonous substances. It might and would give rise to a great deal of litigation, not about anything that injures anyone at all, but possibly in the prosecution of the law, for the purpose of defining what were the poisonous substances. It could do no good. **We have included by name all those which are habit-forming, as I believe**; at least, I consulted with the distinguished gentleman referred to by the gentleman from New York, Mr. Samuel Hopkins Adams, and have inserted more names of medicines than he could furnish me. I consulted with a member of the National Council of Pharmacists in reference to the same matter. The number has been somewhat enlarged beyond the number of poisons originally given to us by the Bureau of Chemistry, and **I think it includes**

all those which in any way become deleterious by their use."

Ib., p. 9000.

With these explanations the amendment proposed by the committee was adopted and the Act was passed in its present form, the provision being made to apply in practically the same language to foods as well as to drugs.

It thus appears that Congress deliberately reached the conclusion that this list included all substances which were habit-forming or so likely to "become deleterious by their use" that their presence and proportions in articles of food or drugs should be stated on the label; and we submit that experts cannot be permitted to extend the Act so as to absolutely prohibit the use in foods of a substance which Congress did not consider sufficiently deleterious or habit-forming to require its inclusion in this list.

If the contention of the libellant on this point were sustained, it would result in this remarkable situation:---

The really pernicious, habit-forming substances, such as morphine, cocaine, etc., which everyone admits to be poisonous, **may still be used in articles of food,** provided their presence is indicated in the label as prescribed in the Act; while caffeine, which is admitted to be far less deleterious than any of the substances included in the list, if indeed there is any ground to class it as a habit-forming substance at all, **is absolutely prohibited.**

An interpretation of the Act which would lead to such a result certainly should not be favored, to say the least of it; and as it is supported only by the theor-

izing of a few experts, who do not even agree among themselves, it is respectfully submitted that it should not prevail.

5. It is further contended on behalf of the libellant that caffeine is not a **normal constituent** of the body, and contributes nothing toward building up the tissues; that therefore it is not a proper article of food at all; and for that reason, it is a poisonous and deleterious ingredient when put into an article of food, and constitutes an adulteration.

In the first place, there is nothing to justify the assumption that Congress intended by the Act to prohibit the use as food of all substances except those which were normal constituents of the body, or possessed nutriment value. The Act itself defines the term "food" as including all articles **used** for food; and as articles containing caffeine were extensively used as foods at the time the Act was passed, the presumption would seem to be that they were recognized as foods.

In the second place, there are, as the proof shows, many articles of food, recognized to be such, which are not normal constituents of the body, such as pepper, cane sugar, ginger, and various other spices and condiments; and on the other hand, there are substances which are normal constituents of the body, but are unfit for food, and are recognized as poisons within the ordinary meaning of that term, such as arsenic, hydrochloric acid, acetic acid, etc. Therefore the question whether a substance is or is not a normal constituent of the body, is not an accurate or proper test for determining whether it is or is not a poisonous or deleterious ingredient in an article of food.

In the third place, many articles commonly used, and properly classified under the Act as foods, possess no value as nutriments. The Act expressly defines food as including articles used as condiments; and few, if any, condiments possess any value as builders of tissue. And so the Act defines food as including all articles used for drink; and many articles used for drink, especially soda water and other fountain beverages, contain nothing which contributes to the nutrition of the body.

But furthermore, it develops in the testimony of the libellant's own witnesses that the dogmatic assertion that caffeine is not a normal constituent of the body, and contributes nothing in the metabolic processes, is mere theory, without any definite knowledge of the facts on which to base it. Caffeine belongs to the xanthine bodies, being scientifically described as trimethyl xanthine, or a xanthine with three methyl groups attached to it. When taken into the body, it is de-methylated, or broken down into less methylated substances by the splitting off of the methyl groups, and finally it is reduced to simple xanthine; and xanthine, in combination, or substances closely allied to it, are confessedly found in the nucleus, or heart, of every living cell in the body. It is admitted also by the libellant's witnesses that most meats and vegetables contain xanthine, or substances belonging to the same class; and that scientists generally know very little about xanthine, or the part it plays in metabolism.

Testimony, W. F. Boos, Record, pp. 422, 423; 437-439.

So all that the witnesses actually know is that caffeine is a xanthine body, and that xanthine bodies are found in the cells, and also that many of the most common articles of food contain xanthine substances. What the purpose or effect of the xanthine substances in the body may be the witnesses do not know; and the opinion they express, that the xanthines are mere waste products, only produced to be eliminated, is quite as likely to be wrong as it is to be right. Indeed in view of the universal craving of the human race for caffeine and other xanthine bodies, and the vast consumption of them all over the globe, we think we might fairly say that the learned doctors are probably wrong, without knowing it, and that caffeine and xanthine do perform some useful part in the metabolism.

The foregoing is the substance of the arraignment of caffeine as a poisonous or deleterious substance as used in foods. No witness undertakes to testify that it produces any organic or functional change in the human body and there is much affirmative evidence to show that it does not. The burden of the complaint is that it causes the human organism to perform its work so well that it is liable to do more than it ought to and fatigue will result. By the same process of reasoning, it might be argued that a fuel which would enable a boiler to produce more steam or better steam is deleterious because the unwise or excessive use of it might result in wearing the boiler out; or that light produces darkness because when the light goes out it is dark; or that a pleasurable sensation produces unpleasant results because when the sensation is over the feeling is not so agreeable as while it was being

experienced. The argument seems too tenuous and metaphysical for so practical a subject.

The proportion of caffeine **manufactured** to caffeine **consumed** on the basis of the statistics for the year 1909, was about as one to one hundred and twenty; the total quantity manufactured in the United States during the year being about 150,000 pounds, and the total quantity consumed therein being about 18,000,000 pounds. Of the manufactured caffeine, about 90,000 pounds was used in the preparation of drugs and medicines, so that not more than 60,000 pounds could have been used in the manufacture of food products, including Coca-Cola. The remainder of the caffeine consumed, approximately 17,850,000 pounds was taken principaly in the form of tea and coffee. There is no evidence whatever that caffeine is any more deleterious in a manuafctured food than in a natural one; while on the other hand, the affirmative evidence, including the testimony of many of the libellant's own witnesses, is that its effects are identical in all the articles in which it is found. (Record, pp. 361, 362, 360, 428). It further appears that the average caffeine content of coffee is greater than the caffeine content of Coca-Cola. (See Record, pp. 879-880; 979-980-981). Therefore, no reason exists why Congress should have made any distinction in the Food and Drugs Act between manufactured and natural caffeine containing foods; there is no evidence that it had any intention of doing so; and if it had undertaken to make an arbitrary discrimination between the two, the Act would probably be unconstitutional. For if it was attempted to prohibit the use of caffeine in manufactured beverages, while permitting it in tea and coffee, there being no

reason for such discrimination, the manufacturers of, dealers in, and consumers of the manufactured beverages would be denied the equal protection of the laws, and their right to "life, liberty and the pursuit of happiness" would be unwarrantably interfered with.

On the other hand, if caffeine is a poisonous or deleterious substance within the meaning of the Act, both in manufactured and natural foods, then its presence in tea and coffee renders these articles "dangerous to the health of the people," and their importation could, and should, be stopped under Section 11 of the Act. If the representatives of the National Government in charge of the enforcement of the Food and Drugs Act are sincere in their contentions as to the deleterious qualities of caffeine and really desire to prevent the use of it in articles of food, in the interest of the health of the people, they could accomplish much more important results by taking the necessary steps to prevent the further importation of tea and coffee; besides which they would not have to meet the objection that the caffeine is not an "added" ingredient, since that is immaterial if the article sought to be imported is dangerous to the public health.

(PART IX.)

IS THE PRODUCT COCA-COLA MISBRANDED WITHIN THE MEANING OF THE INHIBITION OF THE FOOD AND DRUGS ACT?

The averments of the information, so far as they are now material, on the subject of misbranding are that the name Coca-Cola used on the defendant's label is "a representation of the presence in said food product of the substances Coca and Cola;" that "there are and were substances known as Coca and Cola under their own distinctive names, but said food product Coca-Cola contains no Coca, and little, if any Cola;" and that therefore, said product is, (1), An imitation of the substances Coca and Cola, and (2), Is offered for sale under the distinctive name of said two substances.

(Record, p. 63).

As to the averment that the said food product Coca-Cola "contains little, if any Cola," we beg to call attention to the record as follows:

> "THE COURT: There is one averment of the libel, as I get it, with reference to Cola, merely stating in the alternative that it had little, if any, Cola. That would (not) be an averment of the fact that it contained none, would it? There would be no issue to be submitted?
>
> "MR. MILLER: I do not think there would. I don't think there would be an issue arising on that point.
>
> "THE COURT: Well, eliminate that one matter, within the pleadings now, and later, at the proper time, consider that."
>
> (See Record, p. 68).

From this it seems that the averment that the name is a representation that the food product contained Cola, whereas in fact it contained little if any Cola, does not raise an issue in this case.

The claimant denied that the name Coca-Cola as used on its labels is a representation of the presence in said product of the substances Coca and Cola; it denied that there are such substances known as Coca and Cola, under their own distinctive names, and averred that said product did contain certain elements or substances derived from the coca leaves and cola nuts; it denied that said product was or is an imitation of, or is offered for sale under the distinctive name of, any other article. The answer also averred that Coca-Cola was the distinctive name of said product under which it had been made and sold for more than twenty years as an article of food, and that it was, therefore, not to be deemed adulterated or misbranded, under the provisions of the Food and Drugs Act, the name and place of manufacture being stated on the label.

(Record, pp. 65, 66).

The uncontradicted evidence on the part of the claimant, The Coca-Cola Company, showed, and the court so found on motion for peremptory instructions, that the name Coca-Cola was a trade name, which had for many years been exclusively applied to the product in question, and on which "a copyright was many years ago obtained;" that under this name said product has been extensively advertised and sold, and has become generaly known to the trade and consumers; that no other article of food or beverage has been either manufactured or sold under said name, and that "this

name distinguishes this particular product from all other articles and beverages, clearly identifies it as a particular kind and brand of beverage made by its manufacturer, and distinguishes it from all other beverages or food products manufactured and sold by other persons."

(Record, pp. 1898-99).

It further appears that Coca is a South American shrub, and that Cola (or Kola, as it is frequently spelled) is the name of a tree found in Africa. The leaves of the Coca shrub and the nuts of the Cola tree are the only product of these respective plants which are known commercially. The words "Coca" and "Cola" are used in connection with two medicines, as, for example, fluid extract of Coca, and fluid extract of Cola (Kola). There is no natural affinity or connection between the coca plant and the cola tree; and there is no compound or mixture of them made or sold so far as the record shows, and never has been; they grow in different localities, and there is little if any resemblance between their characteristic or qualities.

Nashville Syrup Co. vs. Coca-Cola Co., 215 Fed., Rep., 527, 528.

The evidence further shows that the name Coca-Cola has twice been registered as a trade mark by claimant, first, in 1892, under the Act of 1881, and subsequently in 1905 under the Act of 1905. The right of the defendant, The Coca-Cola Company, to the exclusive use of the name to designate the particular product in controversy in this case has been established by sundry adjudications in the Federal Courts.

(See Record, pp. 715 to 718).

Recent cases adjudicating the question since the trial of this case in the lower Court are:

The Coca-Cola Co. vs. Deacon Brown Bottling Co., 200 Federal, 105; (decided by Judge Grubb, in the Northern District of Alabama).

The Coca-Cola Co. vs. Nashville Syrup Co., 200 Federal, 153, 157; (decided by Judge Sanford, in the Middle District of Tennessee).

Affirmed by the Circuit Court of Appeals in 215 Fed., 527.

The Coca-Cola Co. vs. American Druggists' Syndicate, 200 Federal, 107; (decided by Judge Lacombe in the District Court for the Southern District of New York).

The Coca-Cola Co. vs. Virginia Syrup Co., (decided by Judge Waddill, in the District Court for the Middle District of Virginia).

The Circuit Court of Appeals for the Sixth Circuit has also, considered the question (but not on the trade mark feature) in the case of **The Coca-Cola Co. vs. The Gay-Ola Company**, 200 Federal, 720.

The libel itself alleges:

That the Coca-Cola Company "has for a number of years past been engaged in, and now is engaged in the manufacture and sale of a **food product known as Coca-Cola.**"

(See Record, p. 16).

And one of the charges in the libel was that "the inferiority of the mixture of the **food product Coca-Cola** was concealed."

(See Record, p. 26).

Counsel for the Government stated to the Court:

"I don't dispute the fact that this substance

has **uniformly been sold as Coca-Cola,** barring the change in formula."

(Record, p. 1875).

Counsel for the Government also stated:

"We don't question that you were entitled to the name."

(Record, p. 716).

The witnesses for the Government stated that the product had been sold for a number of years under this particular name.

(Record, p. 293).

Counsel repeatedly in interrogating witnesses, asked:

"I will ask you to state whether or not you have had any experience with Coca-Cola,---what is generally known and sold as Coca-Cola?"

(Record, p. 372).

And the record shows that since the organization of The Coca-Cola Company, and even before that time, the product has been made and sold under the name Coca-Cola.

(Record, p. 720).

The record further contains the undisputed testimony of more than one hundred consumers, retailers and wholesalers, taken in a number of cities in the United States, by which testimony the extensive use of the name was shown, and by which it was further shown that no other drink, beverage or food product has ever been known by the name "Coca-Cola" except the product of this claimant, and by which its extensive advertising and the extensive use of the name was shown; and by which it was indispu-

tably established that by "Coca-Cola" is meant the product of claimant, and none other.

(See Record, pp. 1280, through 1508).

(1) HOW DOES A DISTINCTIVE NAME ARISE?

(1) "Use."

(2) "Association."

(3) Original Signification.

This record shows beyond dispute that Coca-Cola has been used by the claimant for over twenty years; that it has been associated with this one article for that length of time; that it has been exclusively so used. It is impossible to resist the conclusion that Coca-Cola is a distinctive name; and that it means this particular article as made by this claimant, and nothing else.

This name was registered by claimant under the Act of 1881, and again, under the Act of 1905. While it is true that all distinctive names are not entitled to registration, it is likewise true that no name is entitled to registration unless it is distinctive. It can be distinctive in its original signification, or it may have become so by association.

This Court has repeatedly held:

> "The trade mark must, therefore, be **distinctive** in its original signification, pointing to the origin of the article, or it must have become such by association."
>
> **Canal vs. Clark,** 13 Wall., 311, 323.

And this though has been affirmed by this court.

> **Amoskeag vs. Trainer,** 101 U. S., 51.
> **Lawrence Mfg. Co. vs. Tennessee,** 138 U. S., 537.

A similar thought has also, been expressed by this Court in **United States vs. Steffens**, 100 U. S., 82, as follows:

> "It is sufficient at present to say that they provide for the registration, in the Patent Office, of any device in the nature of a trade mark to which any person has **by usage**, established an exclusive right."

It is true that some of the witnesses on behalf of the Government in the present case testified there was such a substance as Coca and also such a substance as Cola, (applying the two different medicines) but even that does not change the above rule. For this Court has held:

> "Words in common use, with some exceptions, may be adopted, if, at the time of their adoption, they were not employed to designate the same, or like articles of production ..... This may, in many cases, be done by a name, a mark, or a device, well known, but not previously applied to the same article."
>
> **Canal Co. vs. Clark**, 13 Wall., 322.
> **Amoskeag Mfg. Co vs. Trainer**, 101 U. S., 51.
> **United States vs. Steffens**, 100 U. S., 82.

And the use of a compound name does not necessarily, or even generally, indicate that the article to which the name is applied contains the substances whose names make up the compound. Thus, soda water contains no soda; the butternut contains no butter; cream of tartar contains no cream; nor milk of lime any milk. Grape fruit is not the fruit of the grape; nor is bread fruit the fruit of bread; the pineapple is utterly foreign to both the pine and the apple, and the manufactured food known as "grape nuts"

contains neither grapes nor nuts, but is made of dried bread crumbs. This language was quoted approvingly in case of Nashville Syrup Co. vs. Coca-Cola Co., 215 Fed., 527.

Now, this record does not show that the words Coca and Cola were in common use, nor does it show they were known. But the record does show that if they, separately, were known at all, that they applied to drugs, while the name Coca-Cola has always been applied to a food product. The record does overwhelmingly show that this latter use far transcends the former.

> "It is possible to divest a geographical, descriptive, or symbol of its original signification."
> **In re: J. F. Tolle**, 1872 C. D., 219.

Where a name has a well-defined, arbitrary meaning, it should not be refused registration because it appears in dictionaries.

> **Ex Parte, Van Eyck**, 1903 C. D., 43.

Does the trade name over shadow the geographical?

> **Ex Parte, Indiana Bicycle Co.**, 1895 C. D., 66.

If the primary meaning has been transcended by the secondary meaning, it is a distinctive name.

> **Ex Parte, Jewell Bottling Co.**, 1904 C. D., 150.
> **Siegert vs. Gandolfi**, 149 Fed. Rep., 100, 103.

And we take it that if a name has acquired a secondary mean, it has become distinctive. This Court has recognized the secondary meaning theory in the following cases:

> **Jacobs vs. Beecham**, 221 U. S., 263.
> **Elgin National Watch Co., vs. Illinois Watch Case Co.**, 179 U. S., 665.

La Republique Francaise Co. vs. Saratoga Vichy Spring Co., 191 U. S., 427.
Baglein vs. Cusiner, 221 U. S., 580.

And this Court has repeatedly affirmed the doctrine as set out in,

Montgomery vs. Thompson, 8 R. P. C., 361, (L. R., 1891).
Wotherspoon vs. Currie, 5 H. L., 508.
Birmingham Vinegar Co. vs. Powell, (1897) A. C., 710.
Reddaway vs. Banham, 12 R. P. C., 83, and House of Lords Decision, 13 R. P. C., 218.

This brings up for consideration the registration of Coca-Cola under the Act of 1905. The record shows the exclusive use of the name Coca-Cola during the ten-year period in interstate commerce. This is without dispute.

The theory upon which this Act is based has been stated by this Court as follows:

> "Congress evidently had in mind the fact that marks, although not susceptible of exclusive appropriation, at common law, frequently acquire a special significance in connection with particular commodities."
>
> **Davids vs. Davids,** 233 U. S., 461, 466.

And the name Coca-Cola has been upheld under this Act as a valid trade mark in the case of **The Coca-Cola Co. vs. Nashville Syrup Co.,** 215 Fed. Rep., 530, wherein the Court said:

> "The words here involved were, if fairly 'descriptive' at all, not purely descriptive, and by ten years' exclusive use they had become the distinctive appellation of plaintiff's product."

Use under this Act must, of necessity, make a mark distinctive.

The English Courts have gone into this matter in many cases.

We quote from the opinion **In Re Crosfield & Sons,** 26 R. P. C., 846; (79 Ch. Div., 212, 227, 224, 226, 228).

> "It often occurs in trade that by continued user, words get recognized as denoting the goods of a particular firm. These words may, in themselves, be unsuitable to be chosen as trade marks, but they have, in fact, become so..... (856, 857).
>
> "Descriptive names may be distinctive, and **vice versa.**"
>
> "It is apparent that no word can be registered under this paragraph unless it is 'distinctive'—that is to say, is 'adapted to distinguish' the goods of the proprietor from the goods of other persons. There are some words which are incapable of being so 'adapted' such as 'good', 'best', and 'superfine'. They cannot have a secondary meaning as indicating only the goods of the applicant. There are other words which are capable of being so 'adapted', and as to such words the tribunal may be guided by evidence as to the extent to which use has rendered the word distinctive."
>
> (Pages 854-855.)
>
> "Much of the argument before us on the part of the Opponents and the Board of Trade was based on an assumption that there is a natural and innate antagonism between distinctive and descriptive as applied to words, and that if you can show that a word is discriptive you have proved that it cannot be distinctive. To my mind, this is a fallacy. Descriptive names may be dis-

tinctive, and **vice versa.** No class of words are more directly and intentionally distinctive than proper names, and yet originally they were usually, if not invariably, descriptive in all languages. They still are so among savage peoples, and although among civilized nations the original significations of proper names are not remembered or regarded, we see that the natural tendency to use descriptive words as names still exists since nicknames---the only names that are now invented ---are usually descriptive. There is, therefore, no natural or necessary incompatibility between distinctiveness and descriptiveness in the case of words used as trade marks. The notion that there is such an incompatibility is confined to lawyers, and is, in my opinion, due to the influence of the earlier Trademark Acts. By those Acts, which are now repealed, the fact that words were descriptive of the goods was fatal to their registration as Trademarks, and thus becoming, in the eye of the law, distinctive of the goods of a particular maker. But the question whether a word is or is not capable of becoming distinctive of the goods of a particular maker is a question of fact, and is not determined by its being or not being descriptive. The law has never refused to recognize that this is the case, or to give protection to descriptive Trademarks when once duly established in fact, although---except in the case of old marks---they refused registration, and left the owners to obtain protection in another form of action. This is now changed, and under the provisions of the present Act, the Court clearly has power to allow descriptive words to be registered, if a case on the merits is proved before it sufficiently strong to induce it to do so. The language of Section 9, Paragraph 5, puts this beyond doubt, but if any doubt upon the point could remain, it would be set at rest by the lan-

guage of Section 44, which provides that: 'No registration under this Act shall 'interfere with * * * the use by any person of any bona fide description of the character or quality of his goods,' clearly indicating that a registered Trademark may have as its essential part words capable of being used descriptively.

"Having thus established the jurisdiction of the Court to permit the registration of words hava direct reference to the character and quality of the goods, as well as geographical terms, it remains to consider the principles on which this jurisdiction should be exercised. Nothing that I have said must be taken to imply that I consider the effect of Paragraph 5 to be to leave the matter a: large, so that it is indifferent for the purposes of registration whether a word is within the classes specified in 3 and 4 or not. On the contrary, I am of opinion that the fact, that the legislature has required in these cases a preliminary permission to proceed, evidences that it intends the excepted cases to be carefully considered on their merits before they are pronounced to be eligible to obtain the privileges of registration. The tribunal before whom is brought an application to register a word under paragraph 5 is entitled to regard the word as **prima facie** unsuitable by reason of its being outside the specified classes, and it is for the applicant to show that it is proper to be registered. This he may do by arguments based on the word itself and the nature of the goods with respect to which it is sought to be registered, as I have already indicated in the case of geographical terms. The exact issue is formulated in the paragraph, and if the tribunal is of opinion that the nature of the word is such that it is adapted to distinguish those particular goods of the trader from those of other persons it will be its duty---in the absence

of special circumstances---to allow the registration to proceed. But the applicant is not confined to arguments drawn from the word itself. He may support his application, in the case of a mark already in use, by showing that by use the mark has, in fact, become more or less completely identified with the goods by having been continuously used in connection therewith, and the Statute expressly provides that the Court may take this into consideration for the purpose of its decision. To my mind, this provision can bear but one interpretation. It recognizes that distinctiveness---that is, being adapted to distinguish the goods from those of other traders---is not necessarily an innate quality of the word. It may be acquired. There may be cases in which the Court might say, 'The word is descriptive of the goods, and cannot be distinctive solely of your make of of these goods'. The Applicant may (if he can) reply thereto: 'I will show you that it can become distinctive of my make of those goods by showing that it has actually become so either generally or in a particular market'. To use a phrase suggested by Lord Justice Farwell during the argument, the reply is of the type of 'Solvitur ambulando'; 'It can denote my goods because it actually does so'. The extent to which the court will require the proof of this acquired distinctiveness to go will depend on the nature of the case. If the objections to the word itself are not very strong it will act on less proof of acquired distinctiveness than it would require in the case of a word which in itself was open to grave objection. I do not think, for instance, that any amount of evidence of user would induce a Court to permit the registration of ordinary laudatory epithets, such as 'best', 'perfect', etc. On the other hand, in the case of a peculiar collocation of words it might be satisfied with

reasonable proof of acquired distinctiveness, even though the words taken separately might be descriptive words in common use.''

(Pages 857-858.)

See also, **In the Matter of Registered Trademarks**, Nos. 538, 1807 and 158, 839, 32 R. P. C., 40, 50.

Application of **Slazengers, Ld.**, 31 R. P. C., 501, 504.

''Distinctive'' is defined by the English Trade mark Act as follows, (5 Edw., VII Chapt. 15):

> ''For the purposes of this Section distinctive shall mean adapted to distinguish the goods of the proprietor of the trade mark from those of other persons.
>
> ''In determining whether a trade mark is so adapted, the tribunal may in the case of a trade mark in actual use take into consideration the extent to which such user has rendered such trade mark in fact, distinctive for the goods with respect to which it is registered or proposed to be registered.''

Application by Candbury Bros., 32 R. P. C., 9, 13,

Application by Berna Commercial Motors Ld., 32 R. P. C., 113, 118,

Woodward vs. Boulton Macro Co., 32 R. P. C., 173, 198.

And the above cases are interpretations of that Act.

There certainly, then, can be no dispute about the fact that the name Coca-Cola is distinctive, and distinctive only of the goods of claimant.

The case of **United States vs. 30 Cases Purporting to be ''Grenadine Syrup''**, 199 Federal, 932, is particularly interesting and in point in this case.

The claimant in the "Grenadine" case shipped in interstate commerce a compound labeled, "Grenadine syrup," which was composed of sugar, citric and tartaric acid, and the juices of certain fruits. It was held,

> "Since the word 'Grenadine' in its common acceptation does not mean a syrup made from pomegranates, but the term 'grenadine syrup' is used in commerce to designate, not a syrup so made, but a syrup possessing a certain characteristic flavor and color, a purchaser of syrup so labeled was not entitled to expect to receive syrup actually made from pomegranates."

The Government endeavored to prove that there was an adulteration and misbranding by limiting the common acceptation of what was meant by "grenadine syrup" and the court held:

> "If this is the fact, a purchaser relying on the label has the right to expect to get a syrup made with pomegranate juice, and is cheated if he gets a syrup from which such juice is absent. But unless the government has sustained **the burden of proving** that the words of the label carry with them the meaning claimed, according to an understanding so general as to give any purchaser the right to believe that syrup so composed is what he is buying, neither charge has been established." (p. 934.)

The court further on stated:

> "The word is no doubt derived from 'grenade', and among its meanings, in French, as the dictionaries of that language referred to show, is a syrup made of sugar and pomegranate juice. It does not necessarily follow, however, that the same meaning of the word is commonly used and accepted in this country. The question is not one

> to be settled by derivation or by dictionaries, except so far as these may tend to show the meaning of the word in common acceptation here."

In the case of **United States vs. 100 Barrels of Calcium Phosphate** (Notice of Judgment No. 300, Food and Drugs Act), in the District Court for the Northern District of California, the article involved had been originally manufactured and put on the market under the name "Cream Acid Phosphate," which had been subsequently abbreviated to the initials, "C. A. P.," on which a trade mark had been obtained, and under which name the article had been extensively sold for many years. It contained about 50 per cent of corn starch; and the proceeding was instituted on the ground that the article was misbranded because the name created the impression that the article was composed solely of acid phosphate which was not true. The court held, however, that as

> "the arbitrary letters 'C. A. P.' had been applied particularly to the substance or product referred to in the libel for the purpose of distinguishing it from other products * * * the substance referred to is manufactured and sold under the distinctive name of 'C. A. P.'"

and therefore it was not misbranded. If, however, the article had been a new one the name "Cream Acid Phosphate" or initials, "C. A. P." indicating that name, would certainly not be accurately descriptive because 50 per cent of the article **was not acid phosphate** at all.

The same idea is carried out in the opinion by Judge Hough, in the case of **United States vs. Von Bremen** (Notice of Judgment 1949), where the question of salad

oil was under discussion. Judge Hough stated in his opinion as follows:

> "Therefore, of course, the first inquiry is, what does salad oil mean? Now, without any reference to dictionaries (about which a great deal has been said), it seems to me that the evidence adduced here, shows that there was a time not within the memory of some of the younger of us when salad oil meant olive oil, and it did not mean anything else. Therefore, you may assume that the first, original, or **prima facie** meaning of the words 'salad oil' was olive oil.
>
> "But that phrase, like any other, may acquire in time, and be used in a trade, a commercial, a secondary, or a wholly new, meaning, by the public. Now, that is the inquiry for you, viz.: Whether salad oil has acquired a new or secondary meaning."

Even under Regulation 20, it is stated:

> "A distinctive name is a **trade**, arbitrary or fanciful name which clearly distinguishes a food product, material or compound from any other food product, material or compound."

Judge Sanborn, in the case of **United States vs. 300 Cases of Mapleine**, (Notice of Judgment 163), held,

> "A distinctive name is one either so arbitrary or fanciful as to clearly distinguish it from all other things or one which by long use, has come to mean a substance clearly distinguishable by the public from something else."

Judge Hazel, in the case of the **United States vs. Qumpert** (Notice of Judgment, No. 806), held,

> "A distinctive name is one ordinarily used to distinguish it or the article to which it is applied, from all others, or, one which the public might

come to recognize as meaning something different from any other thing."

We contend that the "Mapleine" case (Notice of Judgment No. 163), and as cited by counsel, gives the rule for determining whether a name is distinctive or not. We quote from said case:

> **"A distinctive name is either one so arbitrary or fanciful as to clearly distinguish it from all other things, or one which by common use has come to mean a substance clearly distinguishable by the public from anything else."**

We cannot conceive of a statement of law that would more exactly coincide with the facts as adduced at the trial of this case. We contend that under the undisputed evidence Coca-Cola has by common use come to mean a substance clearly distinguishable by the public from anything else. There is not one scintilla of evidence in this case that denies or refutes the common use and the public understanding of the name Coca-Cola.

We call special attention to the opinion rendered by the Attorney-General of the United States, to-wit, Hon. George W. Wickersham, on October 19th, 1910 (being Food Inspection Decision No. 127), wherein the question involved was whether "Canadian Club Whiskey" was a distinctive name. In the opinion, it is stated by the learned Attorney-General:

> "It is a particular kind and blend of whiskey, made by Hiram Walker & Sons, and is now and has been for years known and sold under the name 'Canadian Club Whiskey.' It is known by that name, and no other to the trade and consumers in the United States and other countries."

It was contended in that case by the Solicitor of the Department of Agriculture, that a distinctive name under the Act meant one that was purely abitrary or fanciful. In reply to that contention, the Attorney-General stated:

> "It seems to me that such a construction * * * is not only unwarranted, but undesirable. The two main purposes which the Pure Food Law was designed to accomplish are: (1) To prevent the sale of adulterated foods; and (2), to prevent deception being practiced on the public. It would seem to me that the latter purpose is more apt to be secured by permitting the sale of a product under its own name, qualified by some distinguishing characterization, than by requiring it to be masked in an anonymity which would give no clue to any of its component elements. But, without entering into an analysis of the many decisions cited in briefs of the respective parties, or further pursuing the discussion of the question, it appears to me clear that the name 'Canadian Club Whiskey' is a distinctive name, so arbitrary and so fanciful as to clearly distinguish it from all other kinds of whiskey or other things, **and a name which by common use has come to mean a substance, clearly distinguishable by the public from anything else.**"

Several English cases directly in point have received consideration involving as they do the English Act.

Lord Redding, speaking for the Court, in the case of **Lemy vs. Watson,** 32 R. P. C., 508 (521), said:

> "I agree with the view put forward by Sir Robert Finlay, and which is founded on the observations of Lord Alverstone in **Rex v. Butcher,** in which he said at the end of his judgment, in dealing with this very Section 18.

'It was that evil to which the Act was directed. What it did was to say that those well known conventional descriptions which had been applied to various classes of goods should be protected. What is intended to be protected under this Section is a trade description, lawfully and generally applied to goods of a particular class, or manufactured by a particular method to indicate the particular class or method of manufacture of such goods.'"

"That is almost in terms stating the words of the statute. He gives it this meaning, that is to say, that the object of that Section was to protect the conventional descriptions, such as 'Brussels carpet,' which is the instance given, and other secondary meanings which have grown up in the course of time and of which instances have been given during the course of the case. I am myself quite satisfied that you cannot have a conventional description or secondary meaning unless those who were parties to it, that is, both sellers and purchasers, agree. There can be no convention which is made by the trade to which the public is not a party. There can be in my view no secondary meaning for the purposes of this Section, to which, again, the public is not a party. I come to the conclusion, therefore, that the Court was wrong when it decided that this trade description had generally been applied before 1887."

Fowler vs. Cripps, 1906, 1 K. B., 21:

Washing soda and Glauber's Salt are both salts of soda in a crystalline form; but the description "Soda Crystals" is by the usage of the trade applied only to the former. The latter was so sold, and the defense contended the truth. The prosecution contended, scientifically, the truth, but not in trade. The answer

of the defense was, that the custom of the trade cannot make that false which apart from the custom is perfectly true.

In the opinion, the court stated:

> "The Act was passed not to ensure scientific accuracy in trade terms, but to protect trade, and to ensure . . . that terms shall not be applied to substances when the application would, according to common acceptation of those terms in the trade, lead the purchaser to assume that he was buying something different from what he really was buying. . . . The fact that a description as applied to particular goods is scientifically correct will not prevent it from being a false trade description. And the converse is equally true. Many trade terms are of very old standing, and it may be that with the advance of science, some of them will become scientifically incorrect, but proof of that will not cause them to be false trade descriptions if they continue to be understood in the trade as indicating the same substances which they did when those terms first came into use."

Rex vs. Butcher, 99 L. T., 622:

Appellant sold British-made cigars, but 83% of tobacco used in the manufacture was imported from Havana. Appellant did not manufacture, nor did he apply the trade description. They were called "La Cuanzo" and "Allegato." On the box was a copy of the Spanish arms, map of Cuba, and pictures of Spanish ladies, but nothing stating that they were British-made. It was contended by the prosecution that the Spanish words and pictures constituted a trade description, which was false (1), as to place where

goods were made or produced, (2), as to mode of manufacturing and producing, and (3), as to material.

The defense contended that for thirty years the ornamentations had been used. Experts were called to show that all cigar boxes were gotten up in this way.

The court held:

> "There is evidence that the trade description was false. Section 18 is to protect one particular trade description which is like a trademark attached to a particular class of goods. What is intended to be protected under this Section is a trade description lawfully and generally applied to goods of a particular class or manufacture by a particular method to indicate the particular class or method of manufacture of such goods. What it did, was to say that these well known conventional descriptions which had been applied to various classes of goods should be protected. (Example, Brussels carpet.) This will be found in the books in connection with a variety of manufactures. Secondary markings applied to names which would be misleading if they were now to be construed for the first time, or even to be construed for the first time after the passing of the Act. That is what the statute meant to protect."

2. Having argued at some length that the name Coca-Cola is misleading and deceptive, and therefore not a legitimate distinctive name, because the product in question contains "no coca and little if any, cola," counsel for libellant then contend that the name would be ineligible as a distinctive name if the product did contain "the substances coca and cola," because in the language of counsel "it is apparent that the only name of a compound which can be its 'own distinctive name' is a name **which is not descriptive** of the ingre-

dients." In other words, if a name **is** descriptive of the ingredients it is not a distinctive name, because it cannot be exclusively appropriated, and if it **is not** descriptive, it is misleading and deceptive and therefore not the distinctive name of the article to which it is applied.

We submit that the name in question here is not subject to criticism on either of the grounds stated. It is not **descriptive** because it does not accurately describe the ingredients of the compound; but it is not **deceptive,** because it does not purport to be and was not intended to be descriptive of the ingredients, and no one understands or believes that the name means or indicates anything except the particular combination of substances to which it is applied. The name is necessarily distinctive because it is not, and never has been, applied to anything except this product, and **no one has the right to apply it to anything else.**

The name involved here is of similar character to the name involved in the case of **Keasby vs. Brooklyn Chemical Works,** 142 N. Y., 467. In that case, the facts were as follows:

In 1881 the plaintiff commenced the manufacture of a secret preparation of caffeine. To this preparation, in order to distinguish it from others and to establish a trademark, plaintiff gave the name "Bromo-Caffeine" which name was printed on the labels affixed to their bottles, and was registered in the Patent Office in compliance with the statute. The plaintiff spent between three and four hundred thousand dollars in advertising this preparation. The preparation contained no bromine, but did contain caffeine

and bromide of potassium "and several other substances." In the year 1890, defendants made a preparation "similar to that of plaintiff's intended for the same purpose" to which they first gave the name "Bromide-Caffeine" and subsequently changed it to the name "Bromo-Caffeine." Plaintiff brought suit to enjoin defendant from the use of the name "Bromo-Caffeine," and it was contended on behalf of defendant that plaintiff could not acquire any exclusive right to the words as a trademark "because, as they allege, the words used for that purpose were in common use at the time of their adoption by plaintiff and it is maintained that they indicate the character, quality and composition of the preparation made by plaintiff, and that they correctly describe an article of trade so that its qualities, ingredients and characteristics would be recognized upon seeing or hearing the words."

It appeared that in 1867 a German chemist made a compound which he called "Bromo-Caffeine," and an account of the making of the compound and the process of making it appeared in a chemical journal and some other publication. That compound, however, was not an article of commerce or generally known, was "useless and valueless and unemployed" and was "a mere curiosity of a chemical and not of a medicinal nature," and differed materially in its composition from plaintiff's preparation.

The opinion of the court was delivered by Judge Peckham, afterwards one of the Justices of the Supreme Court of the United States. He said in part:

> "The trade mark does not impart information as to the general characteristics and composition of the plaintiff's preparation at least to such an

extent as to render the trade mark itself invalid on that ground. It is not descriptive to any such extent as that. The name may and probably would suggest to any intelligent man a suspicion or perhaps a belief that the article had bromine or a bromide and caffeine in it in some conceivable form, together with possibly many other substances, but there is nothing in the name which necessarily suggests as the basis of this preparation, any particular bromide out of the twenty-odd which bromine may form with different alkalies, nor would it necessarily suggest that it was bromide at all, for it might be one of the hundreds of other organic compounds with which bromine combines. Upon these facts, how can it be said that by the use of these words there is any such description of the article as indicates to the public the principal ingredients of which the article is composed?

"The word 'Bromo' cannot be claimed as descriptive of the ingredient bromine, because the word is also used with regard to substances which have no bromine in them, but only some one of the different bromides. Neither does the word describe any particular bromide. Neither does it give any clue to the substance other than a bromide with which the bromine may have been compounded. The word fails in fact to give information as to what the ingredient is further than a possibility as above suggested. This failure is very important, for unless the word give some reasonably accurate, some tolerably distinct knowledge as to what the ingredient is, it is clear that it is not descriptive within the meaning of that term as used with reference to a trade mark.

* * * * * * *

"There are, however, some seven different ingredients in the plaintiff's preparation and there

> is no free bromine among them, and there is no evidence as to what the substance is which the bromine (if any) had combined with before being used in the preparation, so that the words 'Bromo-Caffeine' do not in fact describe the ingredients or even give any clear general idea as to what they are."

Interesting on this point is the case of **Carnrick Kidder & Co. vs. Morson,** 1877 Law Journal Notes on Cases, p. 71. The plaintiff adopted the name "Lactopeptine"; the defendants used the word, "Lactopepsine." The following decision is by the Vice-Chancellor of England:

> "The history of the case is that the plaintiffs having invented a compound---Mr. Rogers calls it a drug---I say a compound---give to it a purely fanciful name, and it does not make it the less a fanciful name because lacto is in it and pepsin is in it, because 'Lactopeptine' does not describe any drug. There is no such thing to be found in the Pharmacopeia. * * * * When you look at the formula which is printed upon the bottle containing what is called 'Lactopeptine,' you find a variety of ingredients, sugar of milk, pancreatine, and other things which I need not mention, and so far from being a drug well known, it is nothing like a drug, and it is a composition to which the man who compounds it chooses to give the appellation and descriptive trade mark and character of 'Lactopepsine' or 'Lactopeptine.'"

It was held that "Lactopeptine" was a valid trade mark notwithstanding the presence in it of lactic acid and pepsin.

The most recent case in regard to the subject under consideration was the case of Application of La Societe

le Ferment, to register the trade mark, "Lactobacilline," and the Court of Appeals decided (by Justices Farwell and Kennedy) on June 13th, 1912, where the word "Lactobacilline" was under consideration and the opposition to the registration was made on the ground that the name had direct reference to the character of the goods, indicating lactic acid bacilli. This word was upheld as a trade mark.

La Societe Ferment, 81 L. J. R., 724, (29 R. P. C., 149).

We believe that under the above, Coca-Cola must be held to be a distinctive name. And being established that Coca-Cola is a distinctive name, the charge that Coca-Cola is misbranded, is eliminated, except as to the charge that it is in imitation of and offered for sale under the distinctive name of another article.

Reference is made by the Government to the case of **United States vs. Two Cases of Chloro-Naptholeum,** 217 Fed. Rep., 477, 483. It will be noted that this case was brought under the Insecticide Act, and the claimant relied upon the Coca-Cola case in 191 Fed. Rep., 481. The Court promptly recognized the difference between the two acts, pointing out that,

> "The first proviso of the 8th Section of the Food and Drugs Act (the distinctive name proviso) is not to be found in the Insecticide Act, nor is there any substitute for it."

This, to our mind, shows clearly that the misbranding portion of the Act (except that part referring to imitation, and distinctive name of another article) is wiped out by the proviso.

The case of **Libby, McNeil & Libby vs. United States,** 210 Fed. Rep. 148, distinctly points out that

the distinctive name of another article must be a name used in its popular meaning that is accurately descriptive of another well known food product. The proof of the Government falls far short of this.

In the case of **Worden vs. California Fig Syrup Co.,** 187 U. S. 516, the plaintiff was repelled from a court of equity under the doctrine of unclean hands. The plaintiff claimed, a product that had properties of medicine due to figs therein; and while the name might have been distinctive, there was nothing involved in this case that wiped out the misbranding by the use of a distinctive name. This case differs, therefore, in two respects from the one under consideration. The false use of a name in its primary signification, employed to designate the same, or like articles; and no statute was involved containing the same clause as the Food and Drugs Act.

In **Manhattan Med. Co. vs. Wood,** 108 U. S. 218, the same familiar equitable doctrine was involved, and distinctive name was not a defense.

Even if it were for the sake of argument conceded that the name Coca-Cola because it falsely indicated that the article was composed of "the substances Coca and Cola", was misleading at the time it was originally applied to this product, over thirty years before this suit was brought, it has since that time been so exclusively and extensively applied to the product that no one could have been deceived by the name at the time to which the inquiry in this case must relate. The question involved here is not whether the name might have misled or deceived someone in 1886, but whether it was misleading or deceptive when this suit was brought, in 1909.

Bearing in mind the uncontradicted facts that no other article has been known by this name; that this indentical compound has been advertised, sold purchased and consumed solely under this name in continually increasing quantities for thirty-odd years; that the name means and indicates to the general public nothing else than this particular article; that the exclusive right of defendant to use the name as applied to this product has been established by repeated adjudications (and several of which were vigorously contested); it is submitted that there was nothing to go to the jury on the question whether the name was misleading or deceptive.

(3). Is Coca-Cola sold under the distinctive name of another article? This is a question of fact. The record does not show any such other article.

On the proposition that Coca-Cola is misbranded because sold under the distinctive name of two other articles, we say, in the first place, that under the libellant's own proof, the words Coca and Cola are not the distinctive names of any substances. The testimony is that the words were originally and still are the name of the trees or plants from which the leaves and nuts that are known in commerce were obtained. and that in the trade the coca leaves are now known either as "coca" or "coca leaves," indiscriminately; and that cola nuts are known either as "cola" or "cola nuts." "Coca" is not, therefore, the distinctive names of coca leaves, or any substance obtained therefrom, nor is "cola" the distinctive name of cola nuts, or any of their derivatives.

As was held by the **Circuit Court of Appeals, Sixth Circuit:**

"Neither of these words alone had any absolute complete meaning, but when the words were put together to make the compound term, the ambiguity of meaning was intensified. If coca was spoken of, the reference might be to the leaves, or to a decoction, or to an extract; "cola" might refer to the nuts or to a powder or to a paste or a fluid; and so, when the public first saw the name 'Coca-Cola', it could not know, as we said in the accompanying case, whether the substance was medicine, food or drink, or whether it was intended to swallow, smoke or chew. One who had all the existing available information could only infer that the new substance, whatever it was, had some connection with these two foreign things."

Nashville Syrup Co. vs. Coca-Cola Co., 215 Fed. Rep., 527 (at 531).

If the argument of counsel were sound, then a distinctive name could only arise from a coined or arbitrary word, and this we have heretofore shown is not the law and never has been the law.

We contend that before it can be said that Coca-Cola is offered for sale under the distinctive name of another article, that the evidence must show that the name Coca-Cola in its popular meaning, is accurately descriptive of another well-known food product. The evidence certainly does not prove this.

We contend, further, that there is no proof in this record that the name Coca-Cola was ever used for another article, and therefore no proof that Coca-Cola was sold under the distinctive name of another article. The mere fact that there are such terms as coca, coca leaves, cola and cola nuts, does not substantiate the argument that Coca-Cola is sold under the dis-

tinctive name of another article. The proof shows that what is meant by Coca-Cola is the particular article manufactured by the claimant in this case; it is distinctive of this article. The proof further shows that there is no other article that has ever been on the market or ever sold or introduced by this particular name; that Coca-Cola does not represent the tree and plant of the coca and cola, nor the leaves or nuts of the coca plant or cola tree. In fact, the proof affirmatively shows that **there is no other** distinctive name that Coca-Cola could imitate or under which the product is sold.

As found by Judge LaCombe in the case of the Coca-Cola Co. vs. American Druggists' Syndicate, 200 Federal, 107:

> "There is not in the record any satisfactory evidence that a combination of de-cocanized coca with cola has ever been used, or is usable, in medicine or in the arts or otherwise than as a soft drink,"

and the finding is equally applicable to the record now before this Court.

And, as we have already argued, a new name for a new article may be, and often is, formed by the **combination** of names previously well known; and the name does not necessarily indicate that the new article is composed of the substances whose names are used in forming the new compound name; as for example, pineapple. Could it be argued that pineapple is sold under the distinctive name of another article, because we have the pine and the apple?

The uncontradicted evidence in this case shows that a flavoring material known and referred to in the rec-

ord as "Merchandise No. 5," and which is composed of de-cocoanized Coca leaves and Cola nuts, is a part of the formula of Coca-Cola, and is always used in the manufacture of it. These were two foreign words, neither of which was at the time known in this country to anyone except chemists and scientists; and if it were necessary, as contended by adverse counsel, that some substances from the coca leaves and cola nuts should enter into the compound in order to justify the name, it seems to us that this flavoring extract would be sufficient for the purpose. The name certainly does not indicate that the article is composed exclusively of coca leaves and cola nuts; and if this was the case, the name would be descriptive and therefore could not be protected by trade mark. So the fact that the claimant has obtained a trade mark on the name is evidence of itself that the name is not intended to be descriptive of the ingredients of the article.

It is true that several of the witnesses on behalf of the government testified that they could not detect in the smell or taste of the article the presence of any element derived from coca leaves; but there can be no doubt from the evidence that an extract from the coca leaves is used in it, and it is submitted that the jury could not be permitted to infer that the name was deceptive or misleading merely because centain witnesses are unable to recognize any particular flavor or odor in the article which they can trace to the presence of the coca leaves.

It is true that the proportion of coca extract which apears in the product of Coca-Cola is only about one part in 5300; but on the other hand, the proportion of vanilla in vanilla ice cream, which gives the cream

its name and characteristic flavor, is only about one part in 290,000.

Record, p. 1811.

(4) Is Coca-Cola an imitation of another article? This also resolves itself into a question of fact. The record does not disclose that it is an imitation. No other article is shown that this product could possibly imitate. Could it be argued that because there is a well known substance called ivory that the equally well-known "Ivory Soap" is in imitation thereof. Or, could it be said that this soap was offered for sale under the distinctive name of the bony substance? This same argument would apply to pineapple, soda-water,---in fact, to all names unless they were purely fanciful; and this could not have been the intention of Congress to so limit, because the very idea was to protect trade-names that had become distinctive, or that that should become so.

And so, also, it is not true that, as alleged in the information, the product Coca-Cola is "an imitation of the articles or substances coca and cola." For in the first place, it is impossible, we submit, for any single article to imitate two other and different articles at the same time. It may **resemble** both the others in certain particulars; but in so far as it resembles the one it will be unlike the other, and therefore it cannot as a whole imitate either, and certainly not both. The sphinx, for instance, is said to have had the head and face of a woman, the body of a lion and the wings of an eagle. In certain particulars, it **resembled** each of them; but we submit it could not properly be said to be an **imitation** of any of them or all of them.

But furthermore, according to the contention of counsel for the Government, the "substance coca" is the leaves of the coca plant, and the "substance cola" is the nut kernels of the cola tree, in the dried condition in which they are sold in the market; and it is utterly preposterous to say that the syrup attached in this cause imitates, or even resembles, these substances.

No question of fact was in this case to leave to the jury on the question of imitation and sold under the distinctive name of another article.

It does seem clear that the District Court and the Circuit Court of Appeals correctly held that caffeine could not be considered an added ingredient, and that they further held correctly, that this is not a statute passed for the protection of the public health, except as the public health is protected by the prevention of adulteration and misbranding. It would appear to be a contradiction and an unwise law that would allow the use of such poisons as morphine, opium, heroin, etc., or any derivatives or preparations of such, without even a test under the law; and for the same law to hold that you must go to a jury to find out if caffeine, ---a substance that has been used in foods for ages, ---should be used in food products or not. Such a construction would make the law rediculous and impossible.

It further appears that the District Court and the Circuit Court of Appeals held properly that Coca-Cola is a distinctive name, for to have held otherwise, would

have been to destroy the very thing that the Act was designed to protect, to-wit, trade names.

Respectfully submitted,

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UNITED STATES *v.* COCA COLA COMPANY OF ATLANTA.

ERROR TO THE CIRCUIT COURT OF APPEALS FOR THE SIXTH CIRCUIT.

No. 562. Argued February 29, 1916.—Decided May 22, 1916.

Under the Food and Drugs Act of 1906, the fact that a formula has been made up and followed and a distinctive name therefor adopted does not suffice to take an article from § 7, subd. 5, of the Act. In such a case the standard by which the combination is to be judged is not necessarily the combination itself.

A poisonous or deleterious ingredient with the injurious effect stated by the statute may be an added ingredient in the statutory sense although it is covered by the formula and made a constituent of the article sold.

In construing § 7, subd. Fifth of the Food and Drugs Act *held* that the term adulteration is used in a special sense and its ordinary meaning is not controlling; that an article may be adulterated by the adding of an injurious ingredient including a component part of the article itself; that adulteration must not be confused with misbranding and provisions as to latter do not limit the explicit provisions of § 7 of adulteration; and that proprietary foods sold under descriptive names are within its provisions, including those which were in the market when the Act was passed.

It would reduce the Food and Drugs Act to an absurdity to so construe it as to regard a compound food product, the formula of which included a poisonous or deleterious ingredient, as adulterated within the meaning of § 7 if such ingredient were omitted.

Whether an added ingredient—such as caffeine—is poisonous or deleterious *held*, in this case, in view of decided conflict of competent evidence, to be a question for the jury.

While a distinctive name may be purely arbitrary it must be one that distinguishes the article; and where more than one name, each descriptive of an article, are united, it amounts to misbranding if the article sold does not contain any of the articles generally known individually by any of such names.

THE facts, which involve the construction and application of the adulteration and misbranding provisions of the Food and Drugs Act of 1906, are stated in the opinion.

Mr. Assistant Attorney General Underwood, with whom *Mr. Elliott Cheatham* was on the brief, for the United States.

Mr. Harold Hirsch and *Mr. J. B. Sizer*, with whom *Mr. A. W. Chambliss* and *Mr. W. D. Thomson* were on the brief, for the defendant in error:

In construing a statute, every section, provision and clause should be explained by reference to every other, and if possible, every clause and provision shall avail, and have the effect contemplated by the legislature.

One portion of a statute should not be so construed as to annul or destroy what has been clearly granted by another. The most general and absolute terms of one section may be qualified and limited by conditions and exceptions contained in another, so that all may stand together. *Peck* v. *Jenness*, 7 How. 612, 623; *Montclair* v. *Ransdell*, 107 U. S. 147; *United States* v. *Lexington Mill*, 232 U. S. 399, 409; *Lake County* v. *Rollins*, 130 U. S. 662, 670; *Hamilton* v. *Rathbone*, 175 U. S. 414; *Washington Market Co.* v. *Hoffman*, 101 U. S. 112; *United States* v. *Antikamnia Co.*, 231 U. S. 654, 665; *Hall-Baker Grain Co.* v. *United States*, 198 Fed. Rep. 614.

Even if caffeine is a poisonous or deleterious substance, which might render the article in controversy injurious to health, its presence would not render the article subject to seizure and condemnation under the Act unless it constituted adulteration within the meaning of the Act.

For object of the Food and Drugs Act see *Savage* v. *Jones*, 225 U. S. 501, 530; *Standard Stock Food Co.* v. *Wright*, 225 U. S. 540; *United States* v. *65 Cases*, 170 Fed. Rep. 449; *McDermott* v. *Wisconsin*, 228 U. S. 115.

The cases referred to by the Government do not sustain any different proposition. The purpose of the Act is to secure the purity of foods and drugs, and to inform the purchasers of what they are buying. *United States* v. *Antikamnia Co.*, 231 U. S. 654, 665; and see Cong. Rec., Feb. 20, 1906, pp. 2786, 2787.

The statute contemplates a standard and the Government in the libel filed in this case set out the standard when it claimed to have seized a food product known and sold as Coca-Cola. In other words, the product known and sold as Coca-Cola is the standard; it is the product that must be adulterated. Gruley on Act, pp. 8, 22.

Where there is no standard fixed by any statute the court must and will fix for itself a proper standard based on the evidence. *Von Bremen* v. *United States*, 192 Fed. Rep. 905; *People* v. *Jennings*, 132 Michigan, 662. Such a standard is obtained from trade knowledge of the article. *McCord* v. *United States*, 182 Fed. Rep. 47; *United States* v. *St. Louis Coffee Mills*, 189 Fed. Rep. 193; *United States* v. *Frank*, 189 Fed. Rep. 195; *200 Chests of Tea*, 9 Wheat. 431; *Hudson Co.* v. *United States*, 192 Fed. Rep. 920; *Libby* v. *United States*, 210 Fed. Rep. 148; *United States* v. *Sweet Valley Wine Co.*, 208 Fed. Rep. 85; *United States* v. *75 Boxes*, 198 Fed. Rep. 934; *Weeks* v. *United States*, 224 Fed. Rep. 64; *Cadwalader* v. *Zeh*, 151 U. S. 171.

The Government has admitted that a standard must be established, and is to be established in finding out what is a given substance as recognized by reliable manufacturers and dealers. See Notices Judgm., 123, 130, 135.

The only standard in this case is a food product—Coca-Cola—which has always contained caffeine, *Washburn* v. *United States*, 224 Fed. Rep. 395, 398, and therefore caffeine in this product is not an "added" ingredient or an adulteration within the meaning of the Act.

"Adulterate" means to make impure by the admixture of other, or baser, or foreign ingredients; to render counter-

feit. *St. Louis* v. *Judd*, 236 Missouri, 1; *Commonwealth* v. *Kevin*, 202 Pa. St. 23, 29; *Hall-Baker Grain Co.* v. *United States*, 198 Fed. Rep. 614; *United States* v. *Lexington Mill*, 232 U. S. 399; *United States* v. *11,150 Pounds of Butter*, 195 Fed. Rep. 657, 661.

"Added ingredient" means something foreign to the article to which it is added, therefore an ingredient which is a constituent element and is not foreign is not an added one. *Weeks* v. *United States*, 224 Fed. Rep. 64, 67; *Curtice Bros. Co.* v. *Barnard*, 209 Fed. Rep. 591, 594; Cong. Rec. June 21, 1906, pp. 8891–2, 8900, and Feb. 21, 1906, pp. 2647–2750, Jan. 10, 1906, p. 987 and Feb. 20, 1906, p. 2729, Feb. 19, 1906, p. 2647; H. R. Rep. No. 2118, March 7, 1906, 59th Cong., 1st sess.

Even if the statute is one for the protection of the public health the bills show that Congress did not intend to condemn every article having a deleterious ingredient in it, even though it may have rendered the article injurious to health. It was necessary to prove further, that the deleterious ingredient was added. The word "ingredient" indicates Congress had in mind mixed and compound articles of food rather than simple ones.

Since Congress has permitted the use in articles of food of substances which are confessedly habit-forming and deleterious, it can be assumed that it intended to prohibit the use of caffeine, which is admitted to be far less harmful than any of those enumerated in the proviso referred to, and which was and had been for several hundred years prior to the passage of the Act, an ingredient in food articles of almost universal use.

The caffeine contained in the product Coca-Cola is not a poisonous ingredient, or a deleterious ingredient, which may render said product injurious to health, so as to constitute an adulteration within the purview of the Act.

The product is not misbranded within the meaning of

the Act. *Nashville Syrup Co.* v. *Coca-Cola Co.*, 215 Fed. Rep. 527; *Coca-Cola Co.* v. *Gay-Ola Co.*, 200 Fed. Rep. 720.

This name was registered by claimant under the Act of 1881, and again under the Act of 1905. While all distinctive names are not entitled to registration, no name is entitled to registration unless it is distinctive. It can be distinctive in its original signification, or it may have become so by association. *Canal Co.* v. *Clark*, 13 Wall. 311, 323; *Amoskeag Mfg. Co.* v. *Trainer*, 101 U. S. 51; *Lawrence Mfg. Co.* v. *Tennessee*, 138 U. S. 537; *United States* v. *Steffens*, 100 U. S. 82.

The use of a compound name does not necessarily, or even generally, indicate that the article to which the name is applied contains the substances whose names make up the compound.

A geographical or descriptive name or a symbol may be divested of its original signification. *In re Tolle*, 1872 C. D. 219; *Ex parte Van Eyck*, 1903 C. D. 43; *Ex parte Indiana Bicycle Co.*, 1895 C. D. 66; *Ex parte Jewell Bottling Co.*, 1904 C. D. 150; *Siegert* v. *Gandolfi*, 149 Fed. Rep. 100, 103; *Jacobs* v. *Beecham*, 221 U. S. 263; *Elgin Co.* v. *Illinois Watch Co.*, 179 U. S. 665; *La Republique Francaise* v. *Saratoga Vichy Spring Co.*, 191 U. S. 427; *Baglin* v. *Cusiner*, 221 U. S. 580; *Montgomery* v. *Thompson*, 8 R. P. C. 361; *Wotherspoon* v. *Currie*, 5 H. L. 508; *Vinegar Co.* v. *Powell* (1897), A. C. 710; *Reddaway* v. *Banham*, 12 R. P. C. 83, and *House of Lords Dec.*, 13 R. P. C. 218.

Marks, although not susceptible of exclusive appropriation, at common law, frequently acquire a special significance in connection with particular commodities. *Davids* v. *Davids*, 233 U. S. 461, 466.

Use under this Act must, of necessity, make a mark distinctive. See cases in the English courts. *In re Crosfield*, 26 R. P. C. 846; *Re Registered Trademarks*, Nos. 538, 1807 and 158, 839, 32 R. P. C. 40, 50; *Slazengers, Ltd.*, 31 R. P. C. 501, 504. For "distinctive" as defined by the

English Trademark Act (5 Edw., 7, chap. 15); see *Application by Candbury Bros.*, 32 R. P. C. 9, 13; *Application by Berna Commercial Motors, Ltd.*, 32 R. P. C. 113, 118; *Woodward* v. *Boulton Macro Co.*, 32 R. P. C. 173, 198.

The name Coca-Cola is distinctive, and distinctive only of the goods of claimant. *United States* v. *30 Cases &c.*, 199 Fed. Rep. 932; *United States* v. *100 Barrels &c.* (Notice of Judgm., No. 300, Food and Drugs Act); *United States* v. *Von Bremen* (Notice of Judgm., 1949); as to Regulation 20, see *United States* v. *300 Cases of Mapleine* (Notice of Judgm., 163); *United States* v. *Qumpert* (Notice of Judgm., No. 806).

For other English cases directly in point, see *Lemy* v. *Watson*, 32 R. P. C. 508; *Fowler* v. *Cripps*, 1906, 1 K. B. 21; *Rex* v. *Butcher*, 99 L. T. 622; and see also *Keasby* v. *Brooklyn Chemical Works*, 142 N. Y. 467; *Carnrick Kidder & Co.* v. *Morson*, 1877, Law Journal Notes on Cases, 71; *La Societe Ferment*, 81 L. J. R. 724; *United States* v. *Two Cases of Chloro-Naptholeum*, 217 Fed. Rep. 477, 483; distinguished as being brought under the Insecticide Act; and see *Libby, McNeil & Libby* v. *United States*, 210 Fed. Rep. 148; *Worden* v. *California Fig Syrup Co.*, 187 U. S. 516; *Manhattan Med. Co.* v. *Wood*, 108 U. S. 218; *Nashville Syrup Co.* v. *Coca-Cola Co.*, 215 Fed. Rep. 527.

MR. JUSTICE HUGHES delivered the opinion of the court.

This is a libel for condemnation under the Food and Drugs Act (June 30, 1906, c. 3915, 34 Stat. 768) of a certain quantity of a food product known as 'Coca Cola' transported, for sale, from Atlanta, Georgia, to Chattanooga, Tennessee. It was alleged that the product was adulterated and misbranded. The allegation of adulteration was, in substance, that the product contained an added poisonous or added deleterious ingredient, caffeine,

which might render the product injurious to health. It was alleged to be misbranded in that the name 'Coca Cola' was a representation of the presence of the substances coca and cola; that the product "contained no coca and little if any cola" and thus was an "imitation" of these substances and was offered for sale under their "distinctive name." We omit other charges which the Government subsequently withdrew. The claimant answered, admitting that the product contained as one of its ingredients "a small portion of caffeine," but denying that it was either an 'added' ingredient, or a poisonous or a deleterious ingredient which might make the product injurious. It was also denied that there were substances known as coca and cola "under their own distinctive names," and it was averred that the product did contain "certain elements or substances derived from coca leaves and cola nuts." The answer also set forth, in substance, that 'Coca Cola' was the 'distinctive name' of the product under which it had been known and sold for more than twenty years as an article of food, with other averments negativing adulteration and misbranding under the provisions of the Act.

Jury trial was demanded, and voluminous testimony was taken. The District Judge directed a verdict for the claimant (191 Fed. Rep. 431), and judgment entered accordingly was affirmed on writ of error by the Circuit Court of Appeals (215 Fed. Rep. 535). And the Government now prosecutes this writ.

First. As to '*adulteration.*' The claimant, in its summary of the testimony, states that the article in question "is a syrup manufactured by the claimant . . . and sold and used as a base for soft drinks both at soda fountains and in bottles. The evidence shows that the article contains sugar, water, caffeine, glycerine, lime juice and other flavoring matters. As used by the consumer, about one ounce of this syrup is taken in a glass mixed with

about seven ounces of carbonated water, so that the consumer gets in an eight ounce glass or bottle of the beverage, about 1.21 grains of caffeine." It is said that in the year 1886 a pharmacist in Atlanta "compounded a syrup by a secret formula, which he called 'Coca-Cola Syrup and Extract'"; that the claimant acquired "the formula, name, label and good will for the product" in 1892, and then registered "a trade-mark for the syrup consisting of the name Coca Cola" and has since manufactured and sold the syrup under that name. The proportion of caffeine was slightly diminished in the preparation of the article for bottling purposes. The claimant again registered the name 'Coca Cola' as a trade-mark in 1905, averring that the mark had been "in actual use as a trade-mark of the applicant for more than ten years next preceding the passage of the act of February 20, 1905," and that it was believed such use had been exclusive. It is further stated that in manufacturing in accordance with the formula "certain extracts from the leaves of the Coca shrub and the nut kernels of the Cola tree were used for the purpose of obtaining a flavor" and that "the ingredient containing these extracts," with cocaine eliminated, is designated as "Merchandise No. 5." It appears that in the manufacturing process water and sugar are boiled to make a syrup; there are four meltings; in the second or third the caffeine is put in; after the meltings the syrup is conveyed to a cooling tank and then to a mixing tank where the other ingredients are introduced and the final combination is effected; and from the mixing tank the finished product is drawn off into barrels for shipment.

The questions with respect to the charge of 'adulteration' are (1) whether the caffeine in the article was an added ingredient within the meaning of the Act (§ 7, subd. Fifth) and, if so, (2) whether it was a poisonous or deleterious ingredient which might render the article injurious to health. The decisive ruling in the courts below re-

sulted from a negative answer to the first question. Both the District Judge and the Circuit Court of Appeals assumed for the purpose of the decision that as to the second question there was a conflict of evidence which would require its submission to the jury. (191 Fed. Rep. 433; 215 Fed. Rep. 540.) But it was concluded, as the claimant contended, that the caffeine—even if it could be found by the jury to have the alleged effect—could not be deemed to be an 'added ingredient' for the reason that the article was a compound, known and sold under its own distinctive name, of which the caffeine was a usual and normal constituent. The Government challenges this ruling and the construction of the statute upon which it depends; and the extreme importance of the question thus presented with respect to the application of the Act to articles of food sold under trade names is at once apparent. The Government insists that the fact that a formula has been made up and followed and a distinctive name adopted do not suffice to take an article from the reach of the statute; that the standard by which the combination in such a case is to be judged is not necessarily the combination itself; that a poisonous or deleterious ingredient with the stated injurious effect may still be an added ingredient in the statutory sense, although it is covered by the formula and made a constituent of the article sold.

The term 'food' as used in the statute includes "all articles used for food, drink, confectionery, or condiment . . . whether simple, mixed, or compound" (§ 6). An article of 'food' is to be deemed to be 'adulterated' if it contain "any added poisonous or other added deleterious ingredient which may render such article injurious to health." (Sec. 7, subd. Fifth.[1]) With this

[1] Section 7, with respect to 'confectionery' and 'food' is as follows:

"Sec. 7. That for the purposes of this Act an article shall be deemed to be adulterated:

. . .

section is to be read the proviso in § 8, to the effect that "an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded" in the case of "mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names," if the distinctive name of another article is not used or imitated and the name on the label or brand is accompanied with a statement of the place of production. And § 8 concludes with a further proviso that nothing in the Act shall be construed "as requiring or compelling proprietors or manufacturers of proprietary foods which

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"In the case of confectionery:

"If it contains terra alba, barytes, talc, chrome yellow, or other mineral substance or poisonous color or flavor, or other ingredient deleterious or detrimental to health, or any vinous, malt or spirituous liquor or compound or narcotic drug.

"In the case of food:

"First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

"Second. If any substance has been substituted wholly or in part for the article.

"Third. If any valuable constituent of the article has been wholly or in part abstracted.

"Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

"Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health: *Provided*, That when in the preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package, the provisions of this Act shall be construed as applying only when said products are ready for consumption.

"Sixth. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter."

contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this Act may require to secure freedom from adulteration or misbranding." [1]

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[1] Section 8 provides:

"Sec. 8. That the term 'misbranded,' as used herein, shall apply to all drugs, or articles of food, or articles which enter into the composition of food, the package or label of which shall bear any statement, design, or device regarding such article, or the ingredients or substances contained therein which shall be false or misleading in any particular, . . .

"That for the purposes of this Act an article shall also be deemed to be misbranded:

* * * * * * * *

"In the case of food:

"First. If it be an imitation of or offered for sale under the distinctive name of another article.

"Second. If it be labeled or branded so as to deceive or mislead the purchaser, or purport to be a foreign product when not so, or if the contents of the package as originally put up shall have been removed in whole or in part and other contents shall have been placed in such package, or if it fail to bear a statement on the label of the quantity or proportion of any morphine, opium, cocaine, heroin, alpha or beta eucaine, chloroform, cannabis indica, chloral hydrate, or acetanilide, or any derivative or preparation of any of such substances contained therein.

"Third. If in package form, and the contents are stated in terms of weight or measure, they are not plainly and correctly stated on the outside of the package.

"Fourth. If the package containing it or its label shall bear any statement, design, or device regarding the ingredients or the substances contained therein, which statement, design, or device shall be false or misleading in any particular: *Provided*, That an article of food which does not contain any added poisonous or deleterious ingredients shall not be deemed to be adulterated or misbranded in the following cases:

"First. In the case of mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article, if the name be accompanied on the same label or brand with a statement of the place where said article has been manufactured or produced.

In support of the ruling below, emphasis is placed upon the general purpose of the Act which it is said was to prevent deception, rather than to protect the public health by prohibiting traffic in articles which might be determined to be deleterious. But a description of the purpose of the statute would be inadequate which failed to take account of the design to protect the public from lurking dangers caused by the introduction of harmful ingredients, or which assumed that this end was sought to be achieved by simply requiring certain disclosures. The statute is entitled "An Act for preventing the manufacture, sale, or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, and liquors," etc. In the case of confectionery, we find that it is to be deemed to be adulterated if it contains certain specified substances "or other ingredient deleterious or detrimental to health." So, under § 7, subdivision Sixth, there may be adulteration of food in case the article consists in whole or in part of "any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter." In *United States* v. *Lexington Mills Co.*, 232 U. S. 399, 409, it was said that "the statute upon its face shows that the primary purpose of Congress was to prevent injury to the public health by the sale and transporta-

"Second. In the case of articles labeled, branded, or tagged so as to plainly indicate that they are compounds, imitations, or blends, and the word 'compound,' 'imitation,' or 'blend,' as the case may be, is plainly stated on the package in which it is offered for sale: *Provided*, That the term blend as used herein shall be construed to mean a mixture of like substances, not excluding harmless coloring or flavoring ingredients used for the purpose of coloring and flavoring only: *And provided further*, That nothing in this Act shall be construed as requiring or compelling proprietors or manufacturers of proprietary foods which contain no unwholesome added ingredient to disclose their trade formulas, except in so far as the provisions of this Act may require to secure freedom from adulteration or misbranding."

tion in interstate commerce of misbranded and adulterated foods. The legislation, as against misbranding, intended to make it possible that the consumer should know that an article purchased was what it purported to be; that it might be bought for what it really was and not upon misrepresentations as to character and quality. As against adulteration, the statute was intended to protect the public health from possible injury by adding to articles of food consumption poisonous and deleterious substances which might render such articles injurious to the health of consumers." See also *United States* v. *Antikamnia Co.*, 231 U. S. 654, 665; H. R. Report, No. 2118, 59th Cong., 1st Sess., 6–9. It is true that in executing these purposes Congress has limited its prohibitions (*Savage* v. *Jones*, 225 U. S. 501, 529, 532) and has specifically defined what shall constitute adulteration or misbranding; but in determining the scope of specific provisions the purpose to protect the public health, as an important aim of the statute, must not be ignored.

Reading the provisions here in question in the light of the context, we observe:

(a) That the term 'adulteration' is used in a special sense. For example, the product of a diseased animal may not be adulterated in the ordinary or strict meaning of the word but by reason of its being that product the article is adulterated within the meaning of the Act. The statute with respect to 'adulteration' and 'misbranding' has its own glossary. We cannot, therefore, assume that simply because a prepared 'food' has its formula and distinctive name, it is not, as such, 'adulterated.' In the case of confectionery, it is plain that the article may be 'adulterated' although it is made in strict accordance with some formula and bears a fanciful trade name, if in fact it contains an 'ingredient deleterious or detrimental to health, or any vinous, malt or spirituous liquor or compound or narcotic drug.' And the context clearly indicates that

with respect to articles of food the ordinary meaning of 'adulteration' cannot be regarded as controlling.

(b) The provision in § 7, subdivision Fifth, assumes that the substance which renders the article injurious, and the introduction of which causes 'adulteration,' is an ingredient of the article. It must be an 'added' ingredient; but it is still an ingredient. Component parts, or constituents, of the article which is the subject of the described traffic are thus not excluded but are included in the definition. The article referred to in subdivision Fifth is the article sought to be made an article of commerce,—the article which 'contains' the ingredient.

(c) 'Adulteration' is not to be confused with 'misbranding.' The fact that the provisions as to the latter require a statement of certain substances if contained in an article of food, in order to avoid 'misbranding' does not limit the explicit provisions of § 7 as to adulteration. Both provisions are operative. Had it been the intention of Congress to confine its definition of adulteration to the introduction of the particular substances specified in the section as to misbranding, it cannot be doubted that this would have been stated, but Congress gave a broader description of ingredients in defining 'adulteration.' It is 'any' added poisonous or 'other added deleterious ingredient,' provided it 'may render such article injurious to health.'

(d) Proprietary foods, sold under distinctive names, are within the purview of the provision. Not only is 'food' defined as including articles used for food or drink 'whether simple, mixed or compound,' but the intention to include 'proprietary foods' sold under distinctive names is manifest from the provisos in § 8 which the claimant invokes. 'Mixtures or compounds' which satisfy the first paragraph of the proviso are not only 'articles of food,' but are to enjoy the stated immunity only in case they do "not contain any added poisonous or deleterious

ingredients." By the concluding clause of § 8, it is provided that nothing in the Act shall be construed to require manufacturers of 'proprietary foods' to disclose 'their trade formulas' except in so far as the provisions of the Act 'may require to secure freedom from adulteration or misbranding,' and the immunity is conditioned upon the fact that such foods 'contain no unwholesome added ingredient.' Thus the statute contemplates that mixtures or compounds manufactured by those having trade formulas, and bearing distinctive names, may nevertheless contain 'added ingredients' which are poisonous or deleterious and may make the article injurious, and, if so, the article is not taken out of the condemnation of § 7, subdivision Fifth.

(e) Again, articles of food including 'proprietary foods' which fall within this condemnation are not saved because they were already on the market when the statute was passed. The Act makes no such distinction; and it is to be observed that the proviso of § 8 explicitly refers to 'mixtures or compounds which may be now or from time to time hereafter known as articles of food.' Nor does the length of the period covered by the traffic, or its extent, affect the question if the article is in fact adulterated within the meaning of the Act.

Having these considerations in mind we deem it to be clear that, whatever difficulties there may be in construing the provision, the claimant's argument proves far too much. We are not now dealing with the question whether the caffeine did, or might, render the article in question injurious; that is a separate inquiry. The fundamental contention of the claimant, as we have seen, is that a constituent of a food product having a distinctive name cannot be an 'added' ingredient. In such case, the standard is said to be the food product itself which the name designates. It must be, it is urged, this 'finished product' that is 'adulterated.' In that view, there would

seem to be no escape from the conclusion that however poisonous or deleterious the introduced ingredient might be, and however injurious its effect, if it be made a constituent of a product having its own distinctive name it is not within the provision. If this were so, the statute would be reduced to an absurdity. Manufacturers would be free, for example, to put arsenic or strychnine or other poisonous or deleterious ingredients with an unquestioned injurious effect into compound articles of food, provided the compound were made according to formula and sold under some fanciful name which would be distinctive. When challenged upon the ground that the poison was an 'added' ingredient, the answer would be that without it the so-called food product would not be the product described by the name. Further, if an article purporting to be an ordinary food product sold under its ordinary name were condemned because of some added deleterious ingredient, it would be difficult to see why the same result could not be attained with impunity by composing a formula and giving a distinctive name to the article with the criticized substance as a component part. We think that an analysis of the statute shows such a construction of the provision to be inadmissible. Certain incongruities may follow from any definition of the word 'added,' but we cannot conclude that it was the intention of Congress to afford immunity by the simple choice of a formula and a name. It does not seem to us to be a reasonable construction that in the case of 'proprietary foods' manufactured under secret formulas Congress was simply concerned with additions to what such formulas might embrace. Undoubtedly, it was not desired needlessly to embarrass manufacturers of 'proprietary foods' sold under distinctive names, but it was not the purpose of the Act to protect articles of this sort regardless of their character. Only such food products as contain 'no unwholesome added ingredient' are within the saving clause and

in using the words quoted we are satisfied that Congress did not make the proprietary article its own standard.

Equally extreme and inadmissible is the suggestion that where a 'proprietary food' would not be the same without the harmful ingredient, to eliminate the latter would constitute an 'adulteration' under § 7, subdivision Third, by the abstraction of a 'valuable constituent.' In that subdivision Congress evidently refers to articles of food which normally are not within the condemnation of the Act. Congress certainly did not intend that a poisonous or deleterious ingredient which made a proprietary food an enemy to the public health should be treated as a 'valuable constituent,' or to induce the continued use of such injurious ingredients by making their elimination an adulteration subject to the penalties of the statute.

It is apparent, however, that Congress in using the word 'added' had some distinction in view. In the Senate bill (for which the measure as adopted was a substitute) there was a separate clause relating to 'liquors,' providing that the article should be deemed to be adulterated if it contained "any added ingredient of a poisonous or deleterious character"; while in the case of food (which was defined as excluding liquors) the article was to be deemed to be 'adulterated' if it contained "any added poisonous or other ingredient which may render such article injurious to human health." Cong. Rec., 59th Cong., 1st Sess., Vol. 40, p. 897. In explaining the provision as to 'liquors,' Senator Heyburn, the chairman of the Senate Committee having the bill in charge, stated to the Senate (*Id.*, p. 2647): "The word 'added,' after very mature consideration by your committee, was adopted because of the fact that there is to be found in nature's products as she produces them, poisonous substances to be determined by analysis. Nature has so combined them that they are not a danger or an evil—that is, so long as they are left in

the chemical connection in which nature has organized them; but when they are extracted by the artificial processes of chemistry they become a poison. You can extract poison from grain or its products and when it is extracted it is a deadly poison; but if you leave that poison as nature embodied it in the original substances it is not a dangerous poison or an active agency of poison at all.—So, in order to avoid the threat that those who produce a perfectly legitimate article from a natural product might be held liable because the product contained nature's poison it was thought sufficient to provide against the adding of any new substance that was in itself a poison, and thus emphasizing the evils of existing conditions in nature's product. That is the reason the word 'added' is in the bill. Fusel oil is a poison. If you extract it, it becomes a single active agency of destruction, but allow it to remain in the combination where nature has placed it, and, while it is nominally a poison, it is a harmless one, or comparatively so." For the Senate bill, the House of Representatives substituted a measure which had the particular provisions now under consideration in substantially the same form in which they were finally enacted into law. (Section 7, subd. Fifth; § 8, subd. Fourth, provisos.) And the Committee of the House of Representatives in reporting this substituted measure said (H. R. Report, No. 2118, 59th Cong., 1st Sess., pp. 6, 7, 11): "The purpose of the pending measure is not to compel people to consume particular kinds of foods. It is not to compel manufacturers to produce particular kinds or grades of foods. One of the principal objects of the bill is to prohibit in the manufacture of foods intended for interstate commerce the addition of foreign substances poisonous or deleterious to health. The bill does not relate to any natural constituents of food products which are placed in the foods by nature itself. It is well known that in many kinds of foods in their natural state some quantity of poisonous

or deleterious ingredients exist. How far these substances may be deleterious to health when the food articles containing them are consumed may be a subject of dispute between the scientists, but the bill reported does not in any way consider that question. If, however, poisonous or deleterious substances are added by man to the food product, then the bill declares the article to be adulterated and forbids interstate traffic."

This statement throws light upon the intention of Congress. Illustrations are given to show possible incongruous results of the test, but they do not outweigh this deliberate declaration of purpose; nor do we find in the subsequent legislative history of the substituted measure containing the provision any opposing statement as to the significance of the phrase. It must also be noted that some of the illustrations which are given lose their force when it is remembered that the statutory ban (§ 7, subd. Fifth) by its explicit terms only applies where the added ingredient may render the article injurious to health. See *United States* v. *Lexington Mills Co.*, 232 U. S. 399, *supra*. It is urged, that whatever may be said of natural food products, or simple food products, to which some addition is made, a 'proprietary food' must necessarily be 'something else than the simple or natural article'; that it is an 'artificial preparation.' It is insisted that every ingredient in such a compound cannot be deemed to be an 'added' ingredient. But this argument, and the others that are advanced, do not compel the adoption of the asserted alternative as to the saving efficacy of the formula. Nor can we accept the view that the word 'added' should be taken as referring to the quantity of the ingredient used. It is added ingredient which the statute describes, not added quantity of the ingredient, although of course quantity may be highly important in determining whether the ingredient may render the article harmful, and experience in the use of ordinary articles of

food may be of greatest value in dealing with such questions of fact.

Congress, we think, referred to ingredients artificially introduced; these it described as 'added.' The addition might be made to a natural food product or to a compound. If the ingredient thus introduced was of the character and had the effect described, it was to make no difference whether the resulting mixture or combination was or was not called by a new name or did or did not constitute a proprietary food. It is said that the preparation might be 'entirely new.' But Congress might well suppose that novelty would probably be sought by the use of such ingredients, and that this would constitute a means of deception and a menace to health from which the public should be protected. It may also have been supposed that, ordinarily, familiar food bases would be used for this purpose. But, however, the compound purporting to be an article of food might be made up, we think that it was the intention of Congress that the artificial introduction of ingredients of a poisonous or deleterious character which might render the article injurious to health should cause the prohibition of the statute to attach.

In the present case, the article belongs to a familiar group; it is a syrup. It was originally called 'Coca Cola Syrup and Extract.' It is produced by melting sugar,—the analysis showing that 52.64 per cent. of the product is sugar and 42.63 per cent. is water. Into the syrup thus formed by boiling the sugar, there are introduced coloring, flavoring, and other ingredients, in order to give the syrup a distinctive character. The caffeine, as has been said, is introduced in the second or third 'melting.' We see no escape from the conclusion that it is an 'added' ingredient within the meaning of the statute.

Upon the remaining question whether the caffeine was a poisonous or deleterious ingredient which might render the article injurious to health, there was a decided conflict

of competent evidence. The Government's experts gave testimony to the effect that it was, and the claimant introduced evidence to show the contrary. It is sufficient to say that the question was plainly one of fact which was for the consideration of the jury. See *443 Cans of Egg Product*, 226 U. S. 172, 183.

Second. As to '*misbranding*.' In the second count it was charged that the expression 'Coca Cola' represented the presence in the product of the substances coca and cola and that it contained "no coca and little if any cola." So far as 'cola' was concerned, the charge was vague and indefinite and this seems to have been conceded by the Government at the beginning of the trial. With respect to 'coca,' there was evidence on the part of the Government tending to show that there was nothing in the product obtained from the leaves of the coca plant, while on behalf of the claimant it was testified that the material called 'Merchandise No. 5' (one of the ingredients) was obtained from both coca leaves and cola nuts. It was assumed on the motion for a peremptory instruction that there might be a disputed question of fact as to whether the use of the word 'coca' is to be regarded "intrinsically and originally" as stating or suggesting the presence of "some material element or quality" derived from coca leaves, and it was also assumed that the evidence might be deemed to be conflicting with respect to the question whether the product actually contained anything so derived. 191 Fed. Rep. pp. 438, 439. But these issues of fact were considered not to be material. On this branch of the case, the claimant succeeded upon the ground that its article was within the protection of the proviso in § 8 as one known 'under its own distinctive name.' 215 Fed. Rep. p. 544.

Section 8 (*ante*, p. 275), in its Fourth specification as to 'food,' provides that the article shall be deemed to be 'misbranded' "if the package containing it or its label shall

bear any statement, design, or device regarding the ingredients or the substances contained therein, which . . . shall be false or misleading in any particular." Then follows the proviso in question that an article not containing any added poisonous or deleterious ingredients "shall not be deemed to be . . . misbranded" in the case of "mixtures or compounds which may be now or from time to time hereafter known as articles of food, under their own distinctive names, and not an imitation of or offered for sale under the distinctive name of another article," if the name is accompanied with a statement of the place where the article has been produced.[1]

A distinctive name is a name that distinguishes. It may be a name in common use as a generic name, e. g.,

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[1] Among the departmental regulations (adopted in October, 1906, pursuant to § 3, for the enforcement of the Act) is Regulation 20 with respect to 'distinctive names' under § 8, as follows:

" (a) A 'distinctive name' is a trade, arbitrary, or fancy name which clearly distinguishes a food product, mixture, or compound from any other food product, mixture, or compound.

"(b) A distinctive name shall not be one representing any single constituent of a mixture or compound.

"(c) A distinctive name shall not misrepresent any property or quality of a mixture or compound.

"(d) A distinctive name shall give no false indication of origin, character, or place of manufacture, nor lead the purchaser to suppose that it is any other food or drug product."

Regulation 27 is as follows:

"(a) The terms 'mixtures' and 'compounds' are interchangeable and indicate the results of putting together two or more food products.

"(b) These mixtures or compounds shall not be imitations of other articles, whether simple, mixt, or compound, or offered for sale under the name of other articles. They shall bear a distinctive name and the name of the place where the mixture or compound has been manufactured or produced.

"(c) If the name of the place be one which is found in different States, Territories, or countries, the name of the State, Territory, or country, as well as the name of the place, must be stated."

coffee, flour, etc. Where there is a trade description of this sort by which a product of a given kind is distinctively known to the public, it matters not that the name had originally a different significance. Thus, soda-water is a familiar trade description of an article which now, as is well known, rarely contains soda in any form. Such a name is not to be deemed either 'misleading' or 'false,' as it is in fact distinctive. But unless the name is truly distinctive, the immunity cannot be enjoyed; it does not extend to a case where an article is offered for sale 'under the distinctive name of another article.' Thus, that which is not coffee, or is an imitation of coffee, cannot be sold as coffee; and it would not be protected by being called "X's Coffee." Similarly, that which is not lemon extract could not obtain immunity by being sold under the name of "Y's Lemon Extract." The name so used is not 'distinctive' as it does not appropriately distinguish the product; it is an effort to trade under the name of an article of a different sort. So, with respect to 'mixtures or compounds,' we think that the term 'another article' in the proviso embraces different compounds from the compound in question. The aim of the statute is to prevent deception, and that which appropriately describes a different compound cannot secure protection as a 'distinctive name.'

A 'distinctive name' may also, of course, be purely arbitrary or fanciful and thus, being the trade description of the particular thing, may satisfy the statute, provided the name has not already been appropriated for something else so that its use would tend to deceive.

If, in the present case, the article had been named 'Coca' and it were found that the name was actually descriptive in the sense that it fairly implied that the article was derived from the leaves of the coca plant, it could not be said that this was 'its own distinctive name' if in fact it contained nothing so derived. The

name, if thus descriptive, would import a different product from the one to which it was actually affixed. And, in the case supposed, the name would not become the 'distinctive name' of a product without any coca ingredient unless in popular acceptation it came to be regarded as identifying a product known to be of that character. It would follow that the mere sale of the product under the name 'Coca,' and the fact that this was used as a trade designation of the product, would not suffice to show that it had ceased to have its original significance if it did not appear that it had become known to the public that the article contained nothing derived from coca. Until such knowledge could be attributed to the public the name would naturally continue to be descriptive in the original sense. Nor would it be controlling that at the time of the adoption of the name the coca plant was known only to foreigners and scientists, for if the name had appropriate reference to that plant and to substances derived therefrom, its use would primarily be taken in that sense by those who did know or who took pains to inform themselves of its meaning. Mere ignorance on the part of others as to the nature of the composition would not change the descriptive character of the designation. The same conclusion would be reached if the single name 'Cola' had been used as the name of the product, and it were found that in fact the name imported that the product was obtained from the cola nut. The name would not be the distinctive name of a product not so derived until in usage it achieved that secondary significance.

We are thus brought to the question whether if the names coca and cola were respectively descriptive, as the Government contends, a combination of the two names constituted a 'distinctive name' within the protection of the proviso in case either of the described ingredients was absent. It is said that 'coca' indicates one

article, and 'cola' another, but that the two names together did not constitute the distinctive name of any other substance or combination of substances. The contention leads far. To take the illustration suggested in argument, it would permit a manufacturer, who could not use the name chocolate to describe that which was not chocolate, or vanilla to describe that which was not vanilla, to designate a mixture as 'Chocolate-Vanilla,' although it was destitute of either or both, provided the combined name had not been previously used. We think that the contention misses the point of the proviso. A mixture or compound may have a name descriptive of its ingredients or an arbitrary name. The latter (if not already appropriated) being arbitrary, designates the particular product. Names, however, which are merely descriptive of ingredients are not primarily distinctive names save as they appropriately describe the compound with such ingredients. To call the compound by a name descriptive of ingredients which are not present is not to give it 'its own distinctive name'—which distinguishes it from other compounds—but to give it the name of a different compound. That, in our judgment, is not protected by the proviso, unless the name has achieved a secondary significance as descriptive of a product known to be destitute of the ingredients indicated by its primary meaning.

In the present case we are of opinion that it could not be said as matter of law that the name was not primarily descriptive of a compound with coca and cola ingredients, as charged. Nor is there basis for the conclusion that the designation had attained a secondary meaning as the name of a compound from which either coca or cola ingredients were known to be absent; the claimant has always insisted, and now insists, that its product contains both. But if the name was found to be descriptive, as charged, there was clearly a conflict of evidence with respect to the presence of any coca ingredient. We con-

clude that the court erred in directing a verdict on the second count.

The judgment is reversed and the cause is remanded for further proceedings in conformity with this opinion.

It is so ordered.

MR. JUSTICE MCREYNOLDS took no part in the consideration or decision of this case.